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RELIGION AND COOPERATION ACROSS THE GLOBE

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Abstract

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JEL Classification: D90, P35, Z12

Keywords: Religion, Cooperation, Population, Institutions

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Title: Religion and Cooperation across the Globe

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Abstract:

Social science research has stressed the important role of religion in sustaining cooperation among non-kin. We contribute to this literature with a large-scale empirical study documenting the relationship between religion and cooperation. We analyze newly available, experimentally validated, and globally representative data on social preferences and world religions (Christianity, Islam, Hinduism, Buddhism and Judaism). We find that individuals who report believing in such religions also exhibit more prosocial preferences, as measured by their levels of positive reciprocity, altruism and trust. We further document heterogeneous patterns of negative reciprocity and punishment—two key elements for cooperation—across world religions. The association between religion and prosocial preferences is stronger in more populous societies and weaker in countries with better institutions. The interactive results between these variables point again towards the substitutability between religious and secular institutions, when it comes to sustaining cooperation.

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Introduction

Religion constitutes a fundamental aspect of culture and has a long pedigree in social science research. Sigmund Freud viewed religion as "the most precious possession of culture" and culture "what make[s] our communal existence possible" (Freud 2012). Max Weber argued that religion shapes society and economic behavior by affecting preferences for hard-work and thrift (Weber 2002). In *The Elementary Forms of the Religious Life* French sociologist Émile Durkheim went even further, to conclude that religion and society are one (Durkheim 1915). Though social scientists, including economists, have spent considerable research efforts to study the nexus between religion, culture and behavior, some important unanswered questions remain, such as the role of religion for social cooperation.

To make progress on this fundamental question, we focus in this paper on the relationship between world religions and social preferences across the globe. Social preferences, and in particular reciprocity, are important drivers of cooperation among humans (Fehr and Fischbacher 2002). Using a newly available dataset with experimentally validated preference measures, we document the correlation between prosociality and religion. We also test whether larger populations or secular institutions mediate this relationship. We further document important differences in terms of world religions punishment and negative reciprocity, which are key elements of cooperation. Overall, there appears to be a substitution relationship between religious and secular institutions for cooperation worldwide.

Previous cross-cultural and behavioral studies have shown that religion could be an important factor for cooperative prosocial behavior (Purzycki et al. 2016; Norenzayan and Shariff 2008a; Benjamin et al. 2016; Soler 2012; Shariff and Norenzayan 2007; Shariff et al. 2016). Yet, most empirical evidence from existing studies on cooperation comes from specific subject pools in Western, Educated, Industrialized, Rich and Democratic (WEIRD) societies (Henrich et al. 2010), specific samples (case studies) or comparisons across traditional and often small-scale societies (Anderson and Mellor 2009; Sosis and Ruffle 2004; Soler 2012; Benjamin et al. 2016; Ahmed and Salas 2011; Renneboog and Spaenjers 2012; Henrich et al. 2010). A recent literature has also examined the impact of so-called "small Gods." Le Rossignol (2022) examine the relationship between traditional supernatural beliefs and prosocial behavior. Gershman (2016)

studies witchcraft beliefs and the erosion of social capital, in Sub-Saharan Africa, while Gershman (2022) looks at suck beliefs around the world.

We contribute to these literatures with a large-scale empirical study testing the relationship between religion and prosociality at a global level. We focus on so-called Big Gods religions, which have evolved over time and are now a fixture of modern societies across the globe. In particular, we test how beliefs in world religions could foster cooperation, especially in large-scale societies, as has been postulated in the anthropological and psychology literatures (Norenzayan et al. 2014). In our analysis, we focus on three key prosocial traits: positive reciprocity, altruism and trust. To further scrutinize the relationship between religion and cooperation, we analyze differences in negative reciprocity and punishment across religions, since the willingness to punish unfair treatment to one and others has emerged as a key element to sustain cooperative behavior. We then investigate whether the association between religion and prosociality is moderated by the quality of secular institutions. Secular institutions, which have evolved to organize large scale societies across the world and are central pillars of modern economic analysis, also facilitate cooperation and social interaction among non-kin (see Dannenberg and Gallier (2020) for a review of the experimental evidence). We therefore hypothesize, in line with the literature, that the relationship between religion and prosocial behavior becomes weaker in the presence of strong secular institutions. Finally, we assess, whether population density is associated with the strength of the relationship between religion and prosociality, as postulated by the Big Gods theory of cooperation (Norenzayan 2013) and consistent with the model of Bidner and Francois (2011).

The role of religion in economics has been long studied since Max Weber's 1905 Protestant work ethic hypothesis. Barro and McCleary (2003) and McCleary and Barro (2006a) linked religion to economic growth, Guiso et al. (2003) to economic attitudes, and Iannaccone (1990) and Glaeser and Sacerdote (2008) to education. A more recent strand of the literature places less emphasis on the direct effects of religion and more on its human capital externalities, as Becker and Woessmann (2009; 2008), Botticini and Eckstein (2005; 2007; 2012), and Valencia Caicedo (2019). With modern identification techniques, the literature has also revisited the question of religion and economic growth, in Clingingsmith et al. (2009), Campante and Yanagizawa-Drott (2015), Cantoni (2015), Akçomak et al. (2016), Andersen et al. (2017), and Cantoni et al. (2018). The economics of religion literature is vast, so we point the reader to the main surveys by McCleary and Barro (2006b), Iyer (2016a), and Becker et al. (2021). Since cooperation, social interaction

and trade among strangers are drivers of economic growth, one channel through which religion can foster growth, next to work ethic or human capital accumulation, is by fostering cooperation and promoting prosociality or the threat of punishment for anti-social behavior.

Perhaps the closest article to ours conceptually is Guiso et al. (2003). However, there are important differences between the two analysis. They examine the correlation between religion and economic attitudes and focus on trust, whereas trust is only one of the components in our cooperation measure. We look instead at measures of altruism, positive and negative reciprocity (including second and third party punishment), which have emerged in the recent literature. It was precisely this lack of modern measures in surveys such as the World Values Survey, which led to the design and implementation of the expanded Global Preferences Data. Since this survey was administered through Gallup for almost eighty countries in the world, we do not sacrifice coverage or external validity. Our results are also novel and differ from those of the previous study. Most notably, we delve into the relationship between pro-sociality and religion as it relates to population and institutions, giving empirical support to long-standing claims in the literature.

Our findings speak to the longstanding hypothesis that religions promote prosocial behavior (Norenzayan and Shariff 2008a). Empirical studies have documented a positive relationship between religion and human cooperation with non-kin, inside and outside the lab (Tsang et al. 2021; Iyer 2016b). Religion has been linked to cooperation and prosociality in specific societies, such as Mauritius, Paraguay and the Democratic Republic of Congo (DRC) (Xygalatas et al. 2018; Bergeron 2019; Valencia Caicedo 2019). Recent studies have found that Christianity weakened traditional kinship ties and led to the emergence of WEIRD societies, which are characterized by more individualistic, independent, and impersonally prosocial behavior (Schulz et al. 2019; Henrich 2020). Engagement in world religions is also associated with greater fairness in economic games across 15 small-scale societies (Henrich et al. 2010). Another strand of research has documented the particular importance of moralizing gods and religious beliefs in supernatural monitoring for cooperation and the observance of moral norms (Atkinson and Bourrat 2011; Purzycki et al. 2016; Lang et al. 2019). Supernatural punishment might be even more successful in preventing deviant behavior than supernatural rewards. Shariff and Rhemtulla (2012), for example, provide evidence that crime rates are lower, the larger the share of people believing in hell, i.e. supernatural punishment, while crime rates are even higher the more people believe in

heaven. We contribute to this literature with new globally representative data and empirics, on all world religions, covering 90% of human population and global gross domestic product (GDP).

We provide novel insights about the relationship between social preferences and religion, by showing that believers in one of the five world religions (Buddhism, Christianity, Hinduism, Islam and Judaism) across the globe are *more* prosocial, as measured by their levels of positive reciprocity, altruism and trust, compared to individuals not affiliated with world religions. This positive association is present for Buddhists, Christians, Hindus, Jews and Muslims. We also find significant heterogeneity across these world religions in terms of negative reciprocity and punishment patterns, which are central tenets of religious beliefs (Laurin et al. 2012; Johnson 2016) and key elements of human norms of cooperation (Herrmann et al. 2008). Christians, Muslims and Hindus exhibit lower levels of negative reciprocity, including second- and third-party punishments, results emerge insignificant for Buddhists, and are significantly positive for Jews. These results suggest that individuals internalize social values extolled and propagated by their religion, shaping individuals' reciprocity, altruism and trust, while they outsource rewards and punishment to supernatural entities.

We focus our analysis on social preferences, in terms of trust, altruism, positive and negative reciprocity, as they are key motives sustaining social cooperation. Positive and negative reciprocity capture the predisposition to cooperate conditionally on other's cooperation and to punish violations of cooperative norms even at a net cost to the punisher (Fehr and Gintis 2007) and have been argued to be evolutionary stable strategies (Gintis et al. 2003). Altruistic punishments and sanctioning institutions promote cooperative behavior among non-kin, a central puzzle in human behavior (Fehr and Gächter 2002; Gürerk et al. 2006). Similarly, trust has been linked to cooperation (Glaeser et al. 2000), and although this view is contested (Bauer et al. 2019), social trust is held to be "an important lubricant of a social system" (Arrow 1974) and a crucial component of social capital (Putnam 2000). Given the importance of these social preferences for human cooperation, we contribute by providing stylized facts on their relationship with religion.

Importantly, we also explore the relationship between religion and prosocial preferences with respect to population size. From a psychological and cultural evolutionary standpoint, researchers (Norenzayan and Shariff 2008b; Norenzayan 2013; Norenzayan et al. 2016) have hypothesized that religious beliefs in "Big Gods" might have been particularly important to sustain

human cooperation in expanding societies. This is consistent with the collective action problem growing larger as populations expand. Though tantalizing, this hypothesis enjoys limited quantitative support and has not yet been tested systematically at a global scale. We show empirically that the relationship between organized religions and prosocial behavior is indeed *more* marked in countries with larger populations, as previously hypothesized, and consistent with Bidner and Francois (2011).

Extending the analysis to institutions, which have also been shown to contribute to successfully organizing human societies and economies (North 1990; Acemoglu et al. 2001; Henrich et al. 2010), we find that the relationship between religion and prosocial preferences is *weaker* in places where state institutions are stronger, pointing towards a substitution effect between religion and institutions in the social organization of human societies. This is in line with David Hume's idea that morality does not need to be based on divine authority but that conventions of justice, i.e. institutions, can foster social cooperation on larger scale (Hume 2003). Our findings speak to the literature on the interplay between culture and institutions in economics (Alesina and Giuliano 2015) and in particular the substitutability between religion (a cultural trait) and institutions (Norenzayan et al. 2016; Lowes et al. 2017). Finally, interacting religion with both population size and institutional quality, we find stronger associations in larger populations coupled with weaker relationships in countries with better institutions, thus confirming the substitutability between religion and institutions in the social organization of human societies.

By highlighting the role of religion for social preferences, we contribute to an important literature on the origins and determinants of preferences, which has suggested that cultural factors and geography play a role (Weber 2002; Galor and Özak 2016; Litina 2016; Galor et al. 2016; Tabellini 2008; Nisbett and Cohen 2018) and documented the effect of age, gender and cognitive skills on preferences (Falk et al. 2018; Falk and Hermle 2018; Baldassarri and Abascal 2020). In line with this literature, we employ econometric specifications with individual level controls, including math skills and income, as well as country specific fixed effects, though our results are robust to alternative specifications (as detailed in the Appendix). We view these processes as co-evolutionary and these relationships important intrinsically, given the existing theoretical hypotheses. Hence we provide global statistical tests, but do not conduct econometrically identified exercises, beyond key controls at the individual and country levels. Still, we provide empirical support to long-standing theoretical hypothesis in the literature along with a narrative

for our results. In terms of magnitudes, we find that the size of the religion coefficient is twice as large as the one for gender. Overall, we find that religion plays a fundamental role in shaping social preferences, suggesting its importance in sustaining human cooperation. We present our data and methods next, followed by the empirical results and the conclusions.

Data and Methods

The GPS data meets three critical conditions for our empirical analysis: i) reliability of preference measures, which have been experimentally validated ii) extensive cultural variation with comprehensive global coverage, including all world religions and iii) representativeness of country samples (for details on the preference survey module, see Appendix and Falk et al. 2016). The GPS was implemented in a total of 76 countries, representing 90% of the global population and global GDP. To provide geographic representativeness as well as developmental and cultural variation, countries were selected to include all continents and a wide range of economic development levels. For each country, the data contain samples representative of the resident national population aged 15 and older, with a median sample size of 1,000 participants per country. In total, the data include preference measures for about 80,000 participants (see Appendix for further details on the data collection and construction of the social preferences).

The GPS data allow for the assessment of the existence and quantification of differences in preferences between members of world religions and non-religious people at the global level. To identify members of world religions (i.e., Christian, Muslim, Hinduism, Buddhism and Judaism) and non-religious people, we use the (self-reported) religious affiliation variable from the Gallup World Poll 2012. Data on religious affiliation is available for 71 countries and for about 75,500 participants (see Fig. S1 for the global distribution of world religion and Tab. S1 for summary statistics of religious affiliation across countries).[2] To examine the relationship with population and institutions we use two additional data sets. Total population size is taken from the World Bank Development Indicators dataset (see https://databank.worldbank.org/source/world-

[2] In our analysis we use data on social preferences from 75 countries. Since the World Gallup Poll did not ask for religious affiliation in Saudi Arabia, Jordan, United Arab Emirates and Egypt in 2012, we classified all respondents from these countries as Muslims. Our findings are robust to the exclusion of these four countries (see Appendix for details on the statistical analysis).

development-indicators). The measure of institutional quality is taken from the Polity IV project (see https://www.systemicpeace.org), a standard source in the economics literature (Rodrik and Wacziarg 2005; Montalvo and Reynal-Querol 2005; Jones and Olken 2005; Acemoglu et al. 2008; Besley and Persson 2019).[3]

To analyze differences in preferences between members of world religions and non-religious people and for ease of interpretation, we first standardized each preference measure at the global level to exhibit a mean of 0 and a standard deviation of 1. Next, for each preference (p_i) the following individual-level Ordinary Least Squares (OLS) regression with country fixed effects (c_i) was ran on the global sample,

$$p_i = \boldsymbol{religion}_i'\boldsymbol{\beta_1} + \beta_2 gender_i + \beta_3 age_i + \beta_4 age_i^2 + \beta_5 education\ level_i + \beta_6\ household\ income_i + \beta_7 subjective\ math\ skills_i + c_i + \varepsilon_i \quad \text{Eq. (1)}$$

The coefficient vector $\boldsymbol{\beta_1}$ serves as measure of the global difference in religion for the respective preference, within countries. The variable *religion* is constructed as a set of dummy variables indicating the respective religion the respondent belongs to. We use two different specifications of this set. The first one resembles a broad categorization of world religion and only contains one indicator variable, which takes on the value 0 if respondent is non-religious (reference group), 1 if the respondent is part of a world religion. In all specification we also include a dummy variable that indicates if the respondent belongs to a non-world religion (i.e., traditional and small Gods religions).[4] The second set of indicators captures a more detailed categorization of religion. Instead of including all world religions in one category, it contains dummy variables for each world religion (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism).

We included standard controls (i.e., gender, age, age squared, subjective math skills, education level, household income, and country fixed effects) in the estimation to isolate the effect of potentially confounding factors which differ between religious and non-religious people. To capture time-invariant characteristics at the country level, we included country fixed effects, and

[3] We also use the World Governance Indicators as an alternative measure of institutional quality (see Appendix Fig. S12).

[4] We report results for these religions later.

our main results are also robust to using subnational region fixed effects. We also used median splits for population and institutional quality, to test for heterogeneous effects. Standard errors were clustered at the country level. To assess the robustness of our results, we also ran several alternative specifications, leading to very similar results reported below (see supplementary analysis in the Appendix).

Empirical Results

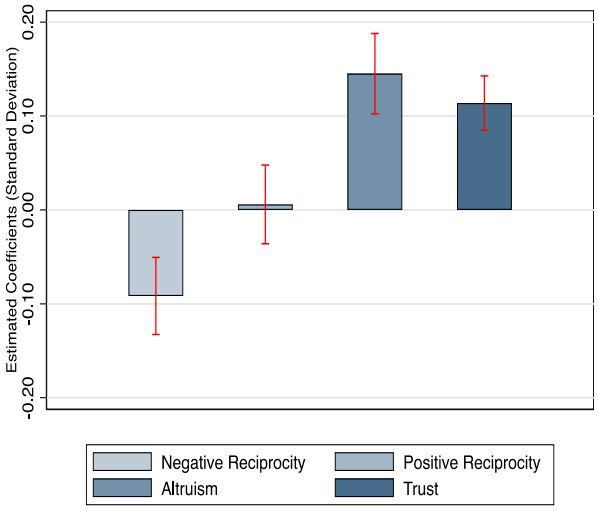
Figure 1 shows the difference in social preference between religious people and non-religious people in several ways. Panel (A) plots the coefficient of the religion indicator for negative reciprocity, positive reciprocity, altruism and trust from regressions that include gender, age, age square, household income, and subjective math skills as captured by Eq. (1). Given the standardization, the estimated coefficients of the religion indicator can be interpreted as the standard deviation change in the dependent variable. Members of world religions have significantly higher levels of trust and altruism compared to non-religious people. Negative reciprocity is significantly different (negatively so) between members of world religions and non-religious people, while differences in positive reciprocity are statistically indistinguishable from zero.[5] Our sample also allows us to investigate members of non-world religions, i.e., traditional and small Gods religions. Fig. S6 in the Appendix shows that members of these religions are more altruistic compared to non-religious people.[6] These findings confirm that religion has a significant effect on the variation in human psychology, in line with the literature surveyed.

[5] Results are similar when we use continent fixed effects instead of country fixed effects. The only difference is that positive reciprocity becomes positive and significant in the specification with continent fixed effects (see Fig. S5 in the Appendix).

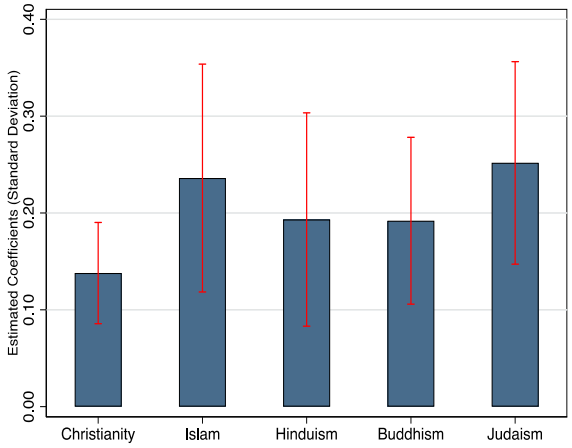
[6] Note that we have only 796 observations for respondents reporting being part of a non-world religion.

Figure 1: Social Preferences and World Religions

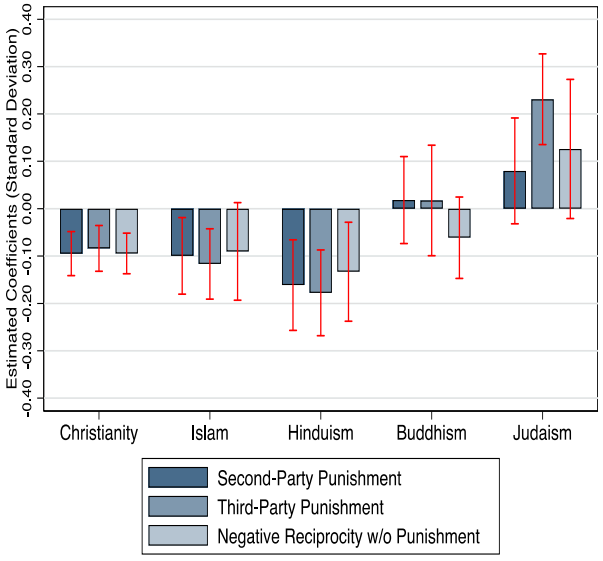
Panel A: World Religions and Social Preferences



Panel B: Prosocial Preferences across World Religions



Panel C: Punishment Patterns across World Religions



Notes: The figure plots coefficients based on an OLS regression (see Tab. S2 (Panel A), Tab. S5 (Panel B), and Tab. S8 (Panel C), respectively). Positive (negative) values indicate that members of world religions exhibited higher (lower) levels of the respective preference. Panel (A): World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. Panel (B) and (C): World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects. Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level.

To benchmark the magnitude of the differences in preference between members of world religions and non-religious people, we compare the size of the estimated coefficient of the religion indicator with the size of the estimated coefficient for gender (Croson and Gneezy 2009; Falk and Hermle 2018), which is an important variable in economic and social research, and an important determinant of cooperation. Fig. S7 compares the effect size of gender and religion. The estimated coefficients of religion and gender follow similar patterns with two main findings standing out: i) the estimated coefficients are significantly different compared to the reference group (non-religious, and males, respectively) except for religion and positive reciprocity and ii) the estimated coefficients of religion are larger (smaller) in size for altruism and trust (for negative and positive reciprocity) compared to the estimated coefficients of gender. These findings show that religion is a relevant factor in explaining differences in preferences, alongside with gender.[7]

Panel (B) of Figure 1 shows the differences in social preferences across Christians, Muslims, Hindus, Buddhists and Jews. We used principal component analysis (PCA) to summarize positive reciprocity, altruism and trust. The (first) predicted principal component then served as the summary index of prosocial preferences or prosociality (see Appendix for details on the statistical analysis as well as for an empirical and theoretical discussion of the social preference index). Christians, Muslims, Hindus, Buddhists and Jews exhibit significantly higher levels of prosociality compared to non-religious people. The range of the differences in standard deviations varies between 0.138 and 0.252 (significant across all world religions). Differences in social preferences between world religions only exist for Christians and Muslims. Muslims have higher levels of prosociality compared to Christians (Wald test: coef. |0.098|, SE: 0.022).[8] These results remain unchanged if we use PCA to summarize two alternative versions of the prosociality preference index that are based on i) altruism and trust and ii) negative reciprocity, positive reciprocity, altruism and trust (see Tab. S5). Interestingly, in terms of heterogeneous effects by gender, women have higher levels of prosociality than men (see Fig. S8), as in Falk et al. (2018).

[7] We explore the interaction between these two variables later on.

[8] We test the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other. The differences between coefficients are reported as absolute differences. SE = Standard Error.

Panel (C) of Figure 1 shows differences in punishment patterns across world religions, as key elements of cooperative behavior. The measure of negative reciprocity is decomposed into its three components: second-party punishment (2PP), third-party punishment (3PP) and taking revenge in response to unfair treatment (see Appendix for details on survey items and the construction of preferences). Christians, Muslims and Hindus have significantly lower levels of second-party and third-party punishment compared to non-religious people. There are no significant differences between Buddhists and non-religious people. Jews have significantly higher levels of third-party punishment, a key element for the enforcement cooperation, compared to non-religious people and members of other world religions (Wald test: for Christianity: coef. |0.315|, SE: 0.050; for Islam: coef. |0.348|, SE: 0.049; for Hinduism: coef. |0.409|, SE: 0.058; for Buddhism: coef. |0.214|, SE: 0.072).[9] These results are consistent with theories about religions outsourcing punishment to God, and are also in line with the rules of life for some of these religions, such as the Torah's "law of retaliation" (Sosis and Ruffle 2003).

To test whether our main findings in Figure 1 (Panel A to C) are robust to potential confounders, we apply several robustness checks. First, we run two alternative specifications where we exclude standard controls from the estimated regression model. In the first specification we exclude all individual controls and keep only country fixed effects. In the second specification we include only exogenous individual controls (i.e., gender, age, age-squared) and country fixed effects. Results from these alternative specifications confirm our main findings (see Tab. S3 for Fig. 1 Panel (A); Tab. S5 for Fig. 1 Panel (B); Tab. S9 for Fig. 1 Panel (C)). Second, we also control for the importance of religiosity (Galen 2012) in our analysis to distinguish between religious beliefs and practices. People with higher religiosity are on average more prosocial compared to people with lower religiosity (see Fig. S10 A and B). Our main results on the differences in prosociality between religious and non-religious people remain essentially unchanged after adding this control (see Tab. S4 for Fig. 1 Panel (A); Tab. S6 for Fig. 1 Panel (B); Tab. S10 for Fig. 1 Panel (C)). Third, our findings are robust to specifications where we exclude four countries for which religious affiliation was not available (see Tab. S4 for Fig. 1 Panel (A); Tab. S7 for Fig. 1 Panel (B), Tab. S10 for Fig. 1 Panel (C)). Finally, to control for potential confounders that may occur due to variation within countries, we replicate our main specifications

[9] This last finding is driven by Jews inside Israel (see Fig. S9 and supplementary analysis).

with subnational region fixed effects instead of country fixed effects. All of our main findings remain unchanged (see Tab. S17 for Fig. 1 Panel (A), and Tab. S18 for Fig. 1 Panel (B) and C). We view the stability of the coefficients positively, assuaging potential omitted variable bias concerns.

Table 1 sheds light on the heterogenous effects of world religion on cooperation. Columns (1) to (4) compare prosociality and negative reciprocity between members of world religions living in countries with small population size (below median) and members of world religions living in countries with large population size (above median). Three main results from this analysis stand out. First, religious people have significantly higher levels of prosociality compared to non-religious people across both categories. Second, members of world religions in countries with large population size have significantly *higher* levels of pro-social preferences compared to religious people in countries with small population size (Wald test: coef. |0.103|, SE 0.046). Third, religious people have significantly lower levels of negative reciprocity compared to non-religious people. The coefficients for negative reciprocity are statistically not distinguishable across the two groups of countries (Wald test: coef. |0.030|, SE: 0.041). These results are in line with the fact that the collective action problem becomes more salient in larger populations and that world religions are one potential mechanism that may have contributed to the emergence and sustainability of large groups. Interestingly, the heterogenous cooperation results load on prosociality rather than negative reciprocity. The latter finding suggests that while the prosociality results are more context specific, outsourcing punishment to God is a universal feature of world religions and operates independently from societal characteristics, such as institutional arrangements or larger populations. We interpret these findings as suggesting a closer relationship between punishment and religion, especially for Big (and punitive) Gods.

Table 1: World Religions and Cooperation

	Population size				Institutional quality			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pro-social index	Pro-social index	Neg. reciprocity	Neg. reciprocity	Pro-social index	Pro-social Index	Neg. reciprocity	Neg. reciprocity
World religion	0.094*	0.197***	-0.107***	-0.077*	0.252***	0.132***	-0.177*	-0.079***
	(0.039)	(0.026)	(0.028)	(0.029)	(0.046)	(0.028)	(0.074)	(0.020)
Population size	Small	Large	Small	Large	-	-	-	-
Institutional quality	-	-	-	-	Low	High	Low	High
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Pseudo-R2	0.183	0.170	0.102	0.130	0.132	0.223	0.126	0.103
Observations	34049	38839	34227	38661	37468	35420	37428	35460

Notes: Coefficients are based on OLS regressions. World religion is a dummy that takes on the value 0 if the respondent is non-religious (reference group), 1 if the respondent is part of a world religion. Columns (1) to (4): The sample was split into respondents living in countries with small population size (below median) and respondents living in countries with large population size (above median) (for further notes see Tab. S11). Columns (5) to (8): The sample was split into respondents living in countries with low institutional quality (below median) and respondents living in countries with high institutional quality (above median). Columns (1), (2), (5) and (6) show estimates with the social preference index as dependent variable. Columns (3), (4), (7) and (8) show estimate with negative reciprocity ad the dependent variable. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. Standard errors clustered at the country level. * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level

Columns (5) to (8) compare prosociality and negative reciprocity between members of world religions living in countries with low (below the median) institutional quality and members of world religions living in countries with high (above the median) institutional quality. As before, three main results from this median split are apparent. First, religious people are significantly more prosocial compared to non-religious people across the two categories. Second, members of world religions in countries with low institutional quality have significantly *higher* levels of social preferences compared to religious people in countries with high institutional quality (Wald test: coef. |0.120|, SE: 0.053). Third, religious people have significantly lower levels of negative reciprocity compared to non-religious people. The coefficients for negative reciprocity are statistically not distinguishable across the two groups of countries (Wald test: coef. |0.098|, SE:

0.076). Again, the heterogenous cooperation results work through prosociality more than negative reciprocity. Thus, outsourcing punishment to God is not replaced by better institutions with more effective sanctioning mechanisms (e.g., legal systems, policing). In Fig. S11 we compare the effect size of world religion and institutional quality—a key pillar for the well-functioning of human societies—on negative reciprocity, positive reciprocity, altruism and trust. The magnitudes of the estimated coefficients of religion and institutional quality are of considerable size and follow opposite directions, positive for religion and negative for institutions. These findings suggest a relation of substitution or crowding out between religion and institutions in terms of prosociality, as previously hypothesized.

The prosociality results in Table 1 are robust to specifications without standard controls and with exogenous individual controls only (see Tab. S11 for Fig. 2 and Tab. S13 for institutional quality in Tab. 1). Moreover, the prosociality results are robust to specifications using different values for institutional quality and population size (see Tab. S12 for Population size in Tab. 1; Tab. S14 for Institutional quality in Tab. 1) and excluding countries with incomplete data for the measure of institutional quality (see Tab. S14 for Institutional quality in Tab. 1). The results hold when we use the Worldwide Governance Indicators provided by the World Bank as an alternative measure of institutional quality (see Fig. S12). Similarly, the results are essentially unchanged when we exclude four countries for which data on religious affiliation was not available from the sample (see Tab. S12 for Population size in Tab. 1; Tab. S14 for Institutional quality in Tab. 1). In light of the recent literature on the relationship of kinship structures, moral values and institutions (Enki 2019; Schultz et al. 2019), we also ran a regression with the median split of the kinship intensity index. According to Schulz et al. (2019) higher kinship intensity index is negatively correlated with institutional quality. Fig. S14 in the Appendix supports our analysis: members of world religions in countries with high kinship intensity have marginally significantly *higher* levels of pro-social preferences compared to religious people in countries with low kinship intensity (Wald test: coef. |0.098|, SE=0.053).

Finally, Figure 2 shows the heterogeneous results of prosociality and the interaction of population size and institutional quality.[10] Using median splits, we performed individual OLS

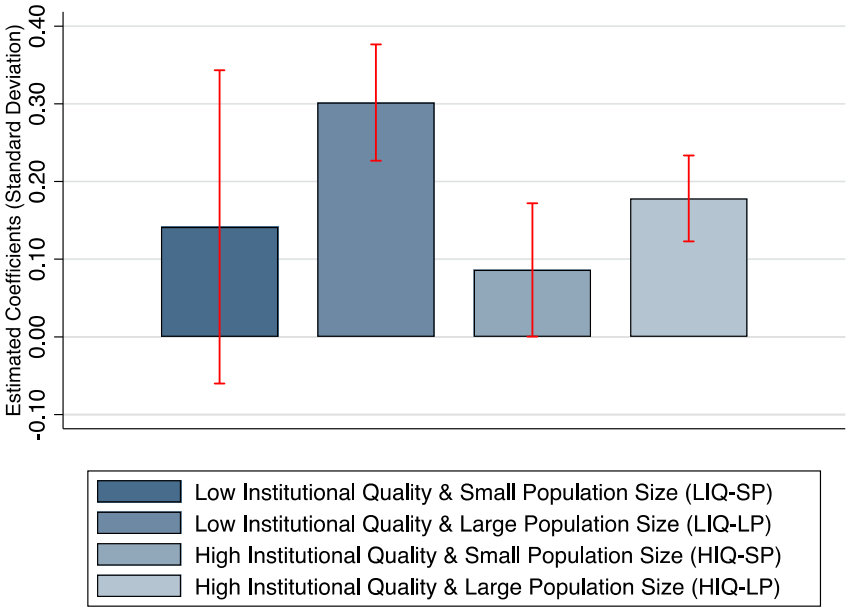
[10] In Fig. S15 of the Appendix we also provide results for negative reciprocity. In line with results of Table 1 there are no heterogeneous effects across the split samples.

regressions for each of the following four groups: Low Institutional Quality and Small Population Size (LIQ-SP), Low Institutional Quality and Large Population Size (LIQ-LP), High Institutional Quality and Small Population Size (HIQ-SP) and High Institutional Quality and Large Population Size (HIQ-LP). Subsequently, we tested if the coefficients for the religion indicator are statistically different across these four groups (see Appendix for details on the statistical analysis). We find first that institutional quality matters "more" in countries with large population size. The difference between LIQ-LP and HIQ-LP is significantly different (Wald test: coef. |0.123|, SE: 0.043). Second, population size has a larger coefficient in high institutional quality countries: The difference between HIQ-SP and HIQ-LP is marginally different (Wald test: coef. |0.092|, SE: 0.048). The heterogeneous effects point again towards a substitutability between religious and secular institutions, when it comes to prosociality,[11] suggesting alternative ways of organizing human societies in order to sustain cooperative equilibria.

We reiterate that we do not take a stand on causality in this paper, beyond controlling for key variables and country characteristics, but view these processes as co-evolutionary. Some potential identification strategies have been proposed in the literature for religiosity (Sinding Bentzen 2019) and prosocial preferences (Becker, Enke, and Falk 2020). Though we find these exercises valuable, our contribution here is to relate important concepts in the psychology, social sciences and economics literatures, as in Enki (2019). Given the importance of the topics, we believe that establishing some key stylized facts and being cognizant of these strong relationships in itself is important, and we leave more econometrically identified explorations, along with other determinants, for future research.

[11] The main findings in Fig. 2 are robust to using specifications without standard controls and with exogenous individual controls only (see Tab. S15, and Tab. S16, respectively).

Figure 2: Religion, Population Size and Institutional Quality and Prosociality



Notes: The figure plots coefficients based on an OLS regression (see Tab. S15 and Tab. S16, respectively). Dependent variable is the prosocial preference index. World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. The sample was split into the following four categories: i) LIQ-SP: respondents living in countries with low institutional quality and small population size, ii) LIQ-LP: respondents living in countries with low institutional quality and large population size, iii) HIQ-SP: respondents living in countries with high institutional quality and small population size, and iv) HIQ-LP respondents living in countries with high institutional quality and large population size. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects. Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level

Conclusion

In this article we show the importance of religion for sustaining human cooperation, through prosocial preferences and punishment patterns. We find stronger relationships between religion and prosociality in countries with larger populations and weaker institutions, suggesting some substitutability between religious and secular institutions in the cooperative organization of societies. The patterns are also consistent with the nature of the collective action problem, which grows in larger populations. We also find lower levels of negative reciprocity, second- and third-party punishments, for Christians, Muslims and Hindus, and higher for Jews, suggesting outsourcing of punishment to supernatural agents. We see value in these results, given the tight link between prosocial preferences and human cooperation, as well as the global prevalence and deep-roots of religious beliefs. We are, however, not able to fully distinguish here the direction of causality between religion and cooperation, acknowledging that these processes might be co-evolutionary (Beheim et al. 2019; Enke 2019). Future research could further disentangle this relationship, as well as explore the link between religion and other important facets of human psychology and behavior, such as patience and attitudes towards risk.

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APPENDIX

Religion and Cooperation across the Globe

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Methods and Materials

Overview

The following section contains details on the Global Preference Survey (GPS) data collection on altruism, trust, positive reciprocity and negative reciprocity. The GPS was conducted as part of the Gallup World Poll 2012 through the infrastructure of Gallup. Prior to implementing the GPS, a total of 12 survey items were selected through an ex-ante experimental validation. The survey items were then translated and made internationally comparable. At the end of 2011, a pre-test of the survey items was conducted in 22 countries as part of the Gallup World Poll 2012 pretest. After receiving feedback, minor adjustments were made to the survey items. The GPS was then implemented in a total of 76 countries as part of the Gallup World Poll 2012. For further details on the experimental validation and data collection see (Falk et al. 2016; "World Gallup Poll" n.d.). The individual-level data on preferences are publicly available and can be found here: https://www.briq-institute.org/global-preferences/downloads. The description of the materials and methods related to the GPS in the following paragraphs can be also found in (Falk and Hermle 2018; Falk et al. 2018; 2022).

Experimental selection and validation of survey items

The experimental selection and validation of survey items through laboratory experiments took place at the Laboratory for Experimental Economics at the University of Bonn during the winter 2010/2011. 402 subjects took part in incentivized laboratory experiments and answered survey questions for each of the six preferences. The survey questions which performed as the best joint predictors of incentivized behavior were selected as items for the respective preference in the GPS. The following paragraphs contain further details on the experimental validation.

Choice experiments, social preference measures, and survey items in the validation

The following section describes the set of incentivized choice experiments and the experimental measures related to social preferences.[1] An overview table is presented below.

In order to isolate social preferences from repeated game motives, all experiments with social interactions were one-shot. Following a perfect stranger random matching protocol, it was ensured that subjects never interacted more than once with the same person.

Trust and positive reciprocity were elicited as first and second mover behavior in two investment games (Berg, Dickhaut, and McCabe 1995) where the amount sent was either doubled or tripled. Hence, each subject took part in four investment games, twice as first mover, twice as second mover. The contingent response method (Selten 1967) was applied for second mover behavior. The average of choices as first or second mover served as experimental measures of trust and reciprocity, respectively.

Altruism was elicited as donation amount in a dictator game with a charitable organization as recipient. Negative reciprocity was elicited through two different experiments: a subject's minimum acceptable offer in an ultimatum game (Güth, Schmittberger, and Schwarze 1982) and a subject's investment into punishment after unilateral defection of their opponent in a prisoner's dilemma (Falk, Fehr, and Fischbacher 2005). Both choices were standardized to account for differences in response scales and averaged to obtain the experimental measure of negative reciprocity.

The choice experiments were accompanied by a large set of qualitative and quantitative survey items. Goal of the experimental validation was to select those survey items for the GPS which were the best predictors of incentivized behavior in the choice experiments. Candidate survey items were

[1] Note that the GPS collected data on six preferences: risk, patience, negative reciprocity, positive reciprocity, altruism and trust. Since the focus of this study is on social preferences, we do not describe the survey items related to risk and patience. For a detailed description of all six preferences see Falk et al. (Falk et al. 2018).

taken from existing surveys, others were newly designed for the experimental selection and validation. The full list of survey items can be found in (Falk et al. 2016).

Social Preference	Experiment	Measure
Trust	First mover behavior in two investment games	Average amount sent as a first mover in both investment games
Altruism	First mover behavior in a dictator game with a charitable organization as recipient	Amount of donation
Positive Reciprocity	Second mover behavior in two investment games (contingent response method)	Average amount sent back in both investment games
Negative Reciprocity	Investment into punishment after unilateral defection of the opponent in a prisoner's dilemma (contingent response method) and minimum acceptable offer in an ultimatum game	Average score: amount invested into punishment and minimum acceptable offer in an ultimatum game

Selection of survey items

For each preference, the survey items were selected as the best joint predictors of incentivized behavior. Each experimental preference measure was regressed via OLS on different combinations of the survey items. The best combination in terms of explanatory power, measured by adjusted R-squared, was then identified and selected for the international survey.

Wording of survey items and construction of preference measures

Survey items

Following the experimental validation, a set of 8 survey items was selected for measuring social preference with the GPS. For each preference, the exact wording of the corresponding survey items is given below. As indicated below, survey items were either qualitative or quantitative.

"Willingness to act" survey items indicate the following introduction "*We now ask for your willingness to act in a certain way in four different areas. Please indicate again your answer on a scale from 0 to 10, where 0 means you are "completely unwilling to do so" and a 10 means you are "very willing to do so". You can also use any numbers between 0 and 10 to indicate where you fall on the scale, like, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10."*

Likewise, "Self-assessment" survey items were preceded by the following introduction: "*How well do the following statements describe you as a person? Please indicate your answer on a scale from 0 to 10. A 0 means "does not describe me at all" and a 10 means "describes me perfectly". You can also use any numbers between 0 and 10 to indicate where you fall on the scale, like 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.*"

<u>I. Positive Reciprocity</u>

1. Self-assessment (qualitative): "*When someone does me a favor I am willing to return it.*"

2. Choice (quantitative): "*Please think about what you would do in the following situation. You are in an area you are not familiar with, and you realize you lost your way. You ask a stranger for directions. The stranger offers to take you to your destination. Helping you costs the stranger about 20 Euro in total. However, the stranger says he or she does not want any money from you. You have six presents with you. The cheapest present costs 5 Euro, the most expensive one costs 30 Euro. Do you give one of the presents to the stranger as a "thank-you"- gift? If so, which present do you give to the stranger? No present / The present worth 5 / 10 / 15 / 20 / 25 / 30 Euro.*"

II. Negative Reciprocity

3. Self-assessment (qualitative): "*If I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so*." In the study we also use the term 'negative reciprocity without punishment' for this item.
4. Willingness to act (qualitative): "*How willing are you to punish someone who treats you unfairly, even if there may be costs for you?*" In the study we also use the term 'second-party punishment' for this item.
5. Willingness to act (qualitative): "*How willing are you to punish someone who treats others unfairly, even if there may be costs for you?*" In the study we also use the term 'third-party punishment' for this item.

III. Altruism

6. Choice (quantitative): "*Imagine the following situation: Today you unexpectedly received 1,000 Euro. How much of this amount would you donate to a good cause? (Values between 0 and 1000 are allowed.)*"
7. Willingness to act (qualitative): "*How willing are you to give to good causes without expecting anything in return?*"

IV. Trust

8. Self-assessment (qualitative): "*I assume that people have only the best intentions.*"

Pretest

The global survey was pre-tested in the Gallup World Poll 2012 pre-test, conducted at the end of 2011. The pre-test was conducted in 22 countries, including 10 countries in central Asia (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Uzbekistan) 2 countries in South-East Asia (Bangladesh and Cambodia), 5 countries in Southern and Eastern Europe (Croatia, Hungary, Poland, Romania, Turkey), 4 countries in the Middle East and North Africa (Algeria, Jordan, Lebanon, and Saudi-Arabia), and 1 country in Eastern Africa (Kenya) with country-sample sizes between 10 and 15 respondents. The goal of the pretest was to receive feedback on whether survey items were understandable and/or whether there were cultural differences in the interpretation of survey items. Pre-test respondents were instructed to indicate difficulties in understanding the survey items and were invited to offer suggestions for rewording.

With regards to the quantitative items, no respondent had any problem in understanding the wording and probabilities used in the survey items. With regards to qualitative items, most respondents understood the survey items when being asked to rephrase the respective item in their own words. Some few respondents made suggestions for rewording of the items which led to an adjustment of four items compared to the original (experimentally validated) items.

1. In some Eastern European and Central Asian countries, the word “charity” was not well understood and hence replaced by “good cause.”
2. Some respondents asked for clarification with regards to the item about one’s willingness to punish unfair behavior. As a consequence, this item was split up into two items, one asking for one’s willingness to punish unfair behavior towards others, the other for one’s willingness to punish unfair behavior towards oneself.

In addition, the format of the survey questions was made consistent with the Gallup World Poll questionnaire style.

Selection of countries

Countries were selected to provide representative coverage of the global population. A key objective of the selection process was to include all geographic regions and development levels. Additionally, the selection aimed at maximizing variation along country characteristics such as language, historical and political conditions, and ecological features. Furthermore, the selection process aimed to include non-neighboring and culturally distinct countries. The following tables list the sampled countries (including abbreviations), sample sizes for each country, and interview modes.

Abbreviation	Country	Sample Size	Interview Mode
AFG	Afghanistan	1000	Face-to-Face
ARE	United Arab Emirates	1000	Face-to-Face
ARG	Argentina	1000	Face-to-Face
AUS	Australia	1002	Landline/Cellular Phone
AUT	Austria	1001	Landline/Cellular Phone
BGD	Bangladesh	999	Face-to-Face
BIH	Bosnia and Herzegovina	1004	Face-to-Face
BOL	Bolivia	998	Face-to-Face
BRA	Brazil	1003	Face-to-Face
BWA	Botswana	1000	Face-to-Face
CAN	Canada	1001	Landline/Cellular Phone
CHE	Switzerland	1000	Landline/Cellular Phone
CHL	Chile	1003	Face-to-Face
CHN	China	2574	Face-to-Face, Landline Phone
CMR	Cameroon	1000	Face-to-Face
COL	Colombia	1000	Face-to-Face
CRI	Costa Rica	1000	Face-to-Face
CZE	Czech Republic	1005	Face-to-Face
DEU	Germany	997	Landline/Cellular Phone
DZA	Algeria	1022	Face-to-Face
EGY	Egypt	1020	Face-to-Face
ESP	Spain	1000	Landline/Cellular Phone
EST	Estonia	1004	Face-to-Face
FIN	Finland	1000	Landline/Cellular Phone
FRA	France	1001	Landline/Cellular Phone
GBR	United Kingdom	1030	Landline/Cellular Phone
GEO	Georgia	1000	Face-to-Face
GHA	Ghana	1000	Face-to-Face
GRC	Greece	1000	Face-to-Face
GTM	Guatemala	1000	Face-to-Face
HRV	Croatia	992	Face-to-Face
HTI	Haiti	504	Face-to-Face
HUN	Hungary	1004	Face-to-Face
IDN	Indonesia	1000	Face-to-Face
IND	India	2539	Face-to-Face
IRN	Iran	2507	Landline/Cellular Phone
IRQ	Iraq	1000	Face-to-Face
ISR	Israel	999	Face-to-Face

Abbreviation	Country	Sample Size	Interview Mode
ITA	Italy	1004	Landline/Cellular Phone
JOR	Jordan	1000	Face-to-Face
JPN	Japan	1000	Landline Phone
KAZ	Kazakhstan	999	Face-to-Face
KEN	Kenya	1000	Face-to-Face
KHM	Cambodia	1000	Face-to-Face
KOR	South Korea	1000	Landline/Cellular Phone
LKA	Sri Lanka	1000	Face-to-Face
LTU	Lithuania	999	Face-to-Face
MAR	Morocco	1000	Face-to-Face
MDA	Moldova	1000	Face-to-Face
MEX	Mexico	1000	Face-to-Face
MWI	Malawi	1000	Face-to-Face
NGA	Nigeria	1000	Face-to-Face
NIC	Nicaragua	1000	Face-to-Face
NLD	Netherlands	1000	Landline/Cellular Phone
PAK	Pakistan	1004	Face-to-Face
PER	Peru	1000	Face-to-Face
PHL	Philippines	1000	Face-to-Face
POL	Poland	999	Face-to-Face
PRT	Portugal	998	Landline/Cellular Phone
ROU	Romania	994	Face-to-Face
RUS	Russian Federation	1498	Face-to-Face
RWA	Rwanda	1000	Face-to-Face
SAU	Saudi Arabia	1035	Face-to-Face
SRB	Serbia	1023	Face-to-Face
SUR	Suriname	504	Face-to-Face
SWE	Sweden	1000	Landline/Cellular Phone
THA	Thailand	1000	Face-to-Face
TUR	Turkey	1000	Face-to-Face
TZA	Tanzania	1000	Face-to-Face
UGA	Uganda	1000	Face-to-Face
UKR	Ukraine	1000	Face-to-Face
USA	United States	1072	Landline/Cellular Phone
VEN	Venezuela	999	Face-to-Face
VNM	Vietnam	1000	Face-to-Face
ZAF	South Africa	1000	Face-to-Face
ZWE	Zimbabwe	1000	Face-to-Face

Survey item translation and cross-country adjustment of monetary amounts

Survey items were translated into the languages of each country according to the following procedure. To make sure that no idiosyncratic errors occurred, at least three translators were involved for each translation of an item in a specific target language. A first translator proposed, depending on the region, an English, French, or Spanish version of the item. A second translator proficient in English, French, or Spanish and the target language conducted the translation to the target language. A third translator translated the item back to the original language. If discrepancies between the original item and the back-translated item occurred, the procedure was repeated until all translators came to an agreement.

Monetary amounts in the quantitative items were made comparable across countries. To do so, monetary amounts were adjusted to correspond to the same share in median income (in the local currency) as the share in German median income (in the original item that was experimentally validated). To avoid cross-country differences in comprehensibility and to preserve simplicity of the items, monetary amounts were rounded.

Sampling and selection of respondents

The within-country sampling of respondents was conducted to achieve national representativeness of the resident population aged 15 and older. The area of coverage generally included the entire country. Exceptions in this regard included areas where the safety of the survey interviewers was endangered and, in some countries, scarcely populated islands. Interviews were either conducted via landline/cellular phone or face-to-face. Telephone interviews were conducted where telephone coverage represents 80% or more of the country's population or is the customary survey methodology.

Depending on the interview mode, the selection of respondents was conducted as follows. In countries where telephone interviews were conducted, either a random-digit-dialing method or nationally representative lists of phone numbers were used. At least three attempts were taken to reach a person in each household. In countries where face-to-face interviews were conducted, primary sampling units were first identified. Primary sampling units, consisting of clusters of households, were stratified by population size and/ or geography. To select sampled households a random-route procedure was employed. Selected households were contacted up to three times (at different times of the day or on different days). A substitution method was employed if the initially sampled household could not be interviewed. In both face-to-face and telephone interviews respondents were selected randomly by either the latest birthday or Kish grid method.

Definition of religion

The information on religious identity is taken from the World Gallup Poll. The survey item includes the following question "*Could you tell me what is your religion?*" Respondents that reported any religion were classified as religious. Respondents that reported secular, non-religious, agnostic, atheist or none were classified as non-religious. In our sample (World Gallup Poll 2012), data on religious identity is available for 71 countries and for 71,520 respondents. For five countries data on religious identity is missing: China, Saudi Arabia, Jordan, United Arab Emirates and Egypt. While we can make no assumptions on religious identity in China, we classified all respondents from the Arabic speaking countries as Muslims. Our assumptions are based on information from the Pew Research Center (http://www.globalreligiousfutures.org/countries). According to Pew's sources, the large majority of people living in these countries are Muslim (data for 2010: 93.0 % in Saudi Arabia, 97.2 % in Jordan, 76.9 % in United Arab Emirates and 94.9 % in Egypt). Tab. S1 provides descriptive

statistics of the religion variables broken down by country. Fig. S1 shows the fraction of members being part of a world religion across countries where the GPS was conducted.

Importantly, for robustness checks we also run regression analysis with restricted sample (71 countries). All our main results remained unchanged (see Supplementary Analysis).

The survey also includes information on religiosity. The survey item includes the following question "*Is religion an important part of you daily life?"* The binary variable takes the value of 0 if religion is not important, and 1 otherwise. We use this variable for robustness checks. All our main results remained unchanged when we include this variable into the main specifications (see Supplementary Analysis).

Definition of additional individual-level variables

Education level. The variable ranges from 1 to 3 according to the following classification. 1: Completed elementary education or less (up to 8 years of basic education). 2: Secondary to 3-year tertiary education and some education beyond secondary education (9-15 years of education). 3: Completed four years of education beyond high school and/or received a 4-year college degree.

Household income bracket. Variable ranges from 1 (0 to 365 US-Dollars) to 27 (above 150,000 US-Dollars) according to the respondent's household income bracket within the country.

Subj. math skills. Self-assessment of the statement *"I am good at math"* on an 11-point Likert scale.

Definition of institutional quality and population size variables (including sources)

Institutional quality. Taken from the website of the POLITY IV project (see https://www.systemicpeace.org). The POLITY2 variable ranges from -10 (strongly autocratic) to +10 (strongly democratic). It is a combined measure of institutionalized democracy and institutionalized

autocracy. For our analysis we use the average score between 2008 and 2012 for the countries where the GPS was conducted. In this time period, Bosnia Herzegovina and Afghanistan were classified as system missing (no score). For these two countries we added the last available POLITY2 score (-7 in the year 2000 for Afghanistan; 0 in the year 1994 for Bosnia). All our main results remained unchanged when we exclude Bosnia Herzegovina and Afghanistan from the sample (see Supplementary Analysis). We also ran robustness checks with the value of institutional quality for the year 2012. We also use different measures of the World Banks' World Governance Indicators as proxies of institutional quality. All results remained essentially unchanged (see Supplementary Analysis).

Population size. Taken from the website of the World Bank (https://data.worldbank.org). For our analysis we use the average population size between 2008 and 2012 for countries where the GPS was conducted. We also run robustness checks with the value of population size for the year 2012. All results remained unchanged (see Supplementary Analysis).

Details on statistical analysis

Statistical analysis

To analyze differences between religious and non-religious people as well as differences between religions for social preferences we followed the following empirical strategy. First, each preference was standardized at the global level. Second, for each preference (p_i) the following individual-level Ordinary Least Squares (OLS) regression with country fixed effects (c_i) was performed on the global sample,

$$Eq\ (1) \qquad p_i = \beta_1 religion_i + \beta_2 gender_i + \beta_3 age_i + \beta_4 age_i^2 + \beta_5 education\ level_i + \beta_6\ household\ income_i + \beta_7 subjective\ math\ skills_i + c_i + \varepsilon_i$$

The obtained coefficient β_1 on the categorial variable for religion ($religion_i$) serves as measure of the global difference in religion for the respective preference. For the analysis we computed two versions of the categorial variable. The first one is a broad categorization of religion. It takes on the value 0 if respondent is non-religious (reference group), 1 if respondent is part of a world religion (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) and 2 if respondent belongs to a non-world religion (i.e., local, primal or traditional religion). The second one is a more detailed categorization of religion. It takes on the value 0 if respondent is non-religious (reference group), 1 if respondent is Christian, 2 if respondent is Muslim, 3 if respondent is Hindu, 4 if respondent is Buddhist, 5 if respondent is Jewish and 6 if respondent belongs to a non-world religion

The inclusion of standard controls (i.e., gender, age, age squared, subjective math skills, education level, household income, and country fixed effects) in the estimation isolates differences from potentially confounding factors which differ between religious and non-religious people. 95 % confidence intervals were computed from standard errors clustered at the country-level. To assess the robustness of our results, we also ran several alternative specifications in a parallel way. Differences obtained from these alternative approaches were found to be similar and are reported below (see Supplementary Analysis).

Summary index of prosocial preferences

We follow previous studies (Fehr and Fischbacher 2002; Kosse and Tincani 2020; Kosse et al. 2020) and refer to prosocial preferences as positive other-regarding behaviors and beliefs. To yield a comprehensive measure of prosocial preferences, we combine measures of three main facets: altruism, trust, and reciprocity. Altruism reflects an individual's willingness to benefit others (without expecting anything in return), (positive) reciprocity reflects an individual's willingness to reward kind behavior, and trust indicates prosocial beliefs about the actions of others.

Our approach on how to estimate prosocial preferences is based on the following empirical and theoretical considerations. The literature suggests that different aspects of positive other-regarding behaviors and beliefs are positively correlated and have a common component. For example, Altmann et al. (Altmann, Dohmen, and Wibral 2008) show a strong positive interpersonal correlation between positive reciprocity and trust based on incentivized choice experiments. Within the GPS, Falk et al. (Falk et al. 2018) show positive relations among altruism, positive reciprocity, and trust at the individual and at the country level. To yield a comprehensive measure of individual social preferences, we combine the GPS measures – altruism, trust, and positive reciprocity – into one measure.

The prosocial preferences index was computed as follows. We used a principal component analysis to summarize positive reciprocity, altruism and trust. The predicted principal component then served as the summary index of prosocial preferences. The eigenvalues of the components are 1.477 (first component), 0.901 (second component), and 0.622 (third component). Therefore, the Kaiser criterion ("eigenvalues greater than one" rule) also suggests a one-dimensional structure of the concept. See Fig. S2 for the distribution of prosocial preferences across the globe.

Importantly, we also used principal component analysis to summarize alternative versions of the social preference index: i) altruism and trust and ii) negative reciprocity, positive reciprocity, altruism and trust. All our main results remained unchanged when we use these alternative summary measures of social preferences (see Supplementary Analysis).

Analysis using median split of the sample

In Table 1 and Fig. 2 of the main text we analyze the data using a median split of the sample. The population size variable was split into respondents living in countries with small population size (below median) and respondents living in countries with large population size (above median). The median value corresponds to a population size of about thirty million people. See Fig. S3 for the distribution of large and small population size across countries where the GPS was conducted. The institutional

quality variable was split into respondents living in countries with low (below the median) institutional quality and members of world religions living in countries with high (above the median) institutional quality. The median value corresponds to an institutional quality of 8 (values range from a low of – 10 to a high of + 10). See Fig. S4 for the distribution of high and low institutional quality across countries where the GPS was conducted.

Next, we performed an individual-level Ordinary Least Squares (OLS) regression of Eq. (1) for each group separately (i.e., below median group and above median group). Subsequently, we tested the null hypothesis of equality of the obtained coefficients (i.e., $\beta_1 religion_i$ of each regression) against the alternative hypothesis that the linear combination of the obtained coefficients is not equal to zero.

Supplementary Analysis

This section describes the details of the supplementary analysis. The main purpose of the supplementary analysis is to test against potential confounders that may affect our baseline results in Fig. 1 Panel (A) to Panel (C), Fig. 2 and Tab. 1 of the main text.

Alternative specifications without using standard controls

We tested if results of Eq. (1) remain unchanged if we exclude standard controls. We ran two alternative specifications. In the first specification we excluded all individual controls and kept only country fixed effects. In the second specification we included gender, age, age-squared, and country fixed effects. Results on the difference between religious and non-religious people using these alternative specifications confirmed our main findings (see Tab. S3 for Fig. 1 Panel (A); columns 1 and 2 in Tab. S5 for Fig. 1 Panel (B); Tab. S9 for Fig. 1 Panel (C); columns 1-4 in Tab. S11 for population size in Tab. 1; columns 1-4 in Tab. S13 for institutional quality in Tab. 1; and columns 1-8 in Tab. S15, and columns 1 and 2 in Tab. S16 for Fig. 2, respectively).

Comparing the effect size of religion and gender

Fig. S5 compares the effect size of gender and religion (based on the main specification of Fig. 1 Panel (A), see also Table S2). The estimated coefficients of religion and gender follow similar patterns with two main findings standing out: i) the estimated coefficients have the same sign and are statistically significantly different compared to the reference group (non-religious, and males, respectively) except for religion and positive reciprocity, and ii) the estimated coefficients of religion are larger for altruism and trust and smaller for negative reciprocity and positive reciprocity compared to the estimated coefficients of gender. Thus, religion appears to be an important factor in explaining prosocial preferences across the globe.

Additionally, we analyzed the heterogeneous effects of religion by gender on the social preference index. Fig. S6. presents marginal effects from an OLS regression. We computed the specification in Eq. (1) and added an interaction term between religion and gender. Female members of world religions have on average statistically significantly higher levels of prosocial preferences compared to male members of world religions ($P<0.001$). Non-religious females also have on average statistically significantly higher levels of prosocial preferences compared to non-religious males ($P<0.001$). Interestingly, the gender differences in prosocial preferences are smaller for members of world religions than for non-religious people.

Alternative measures of the prosocial preference index

Our main analysis is based on the principal component analysis to summarize positive reciprocity, altruism and trust. We tested if results of Eq. (1) remain unchanged if we use two alternative versions of the social preference index. We also used principal component analysis to summarize alternative versions of prosocial preferences: i) altruism and trust and ii) negative reciprocity, positive reciprocity, altruism and trust. All of our main results remained unchanged when we use these alternative summary measures of prosocial preferences (see columns 4-5 in Tab. S5 for Fig. 1 Panel (B); columns 1-4 in

Tab. S12 for population size in Tab. 1; and columns 1-4 in Tab. S14 for Institutional quality in Tab. 1).

Punishment patterns of Jews living in Israel and outside of Israel

Fig. S7. compares punishment patterns of Jews in more detail. The results are based on the specification of Fig. 1 Panel (C) except that we split the religious categorical variable with respect to Jews into two parts: Jewish Israelis (N=777) and Jews living outside of Israel (N=59). Two main findings stand out: i) Jewish Israelis have significantly higher levels of second-party punishment ($P<0.05$) and negative reciprocity without punishment ($P<0.01$) compared to Jews living outside of Israel, and ii) punishment patterns of Jews living outside of Israel are statistically not distinguishable from punishment patterns of non-religious people.

Controlling for religiosity

To avoid that we conflate indifferent or uncommitted believers with completely non-religious people (see for example, Galen (Galen 2012)), we also controlled for the importance of religion in a respondent's daily life. To do so, we ran Eq. (1) and added a control variable indicating the importance of religion. The binary variable takes on a value of 1 if religion is important in daily life and 0 otherwise (note that we lose observations for this variable due to missing responses in the survey). Our main results remained unchanged (see columns 2, 4, 6 and 8 in Tab. S4 for Fig. 1 Panel (A); Tab. S6 for Fig. 1 Panel (B); and columns 2, 4, and 6 in Tab. S10 for Fig. 1 Panel (C)).

Additionally, we analyzed the heterogeneous effects of religion on the social preference index, by religiosity. Fig. S8A and B presents marginal effects from an OLS regression. We computed the specification in Eq. (1) and added an interaction term between religion and religiosity. Three main results stand out: i) people with higher religiosity are on average more prosocial compared to people with lower religiosity, ii) there are no statistically significant differences in religiosity between

members of Islam (P=0.179) and Buddhism (P=0.126) and for non-religious people (P=0.089) and iii) the same patterns hold when we excluded non-religious people from the sample (Fig. S8B) except that among Buddhists the difference between people with high religiosity and people with low religiosity is statistically significant (P=0.033).

Comparing the effect size of religion and institutional quality

Fig. S9. compares the effect size of institutional quality and religion. The results are based on Eq. (1) except that we added a binary variable for institutional quality (median split). The binary variable takes on the value 0 if respondent is living in a country with low institutional quality, and 1 if respondent is living in a country with high institutional quality. The estimated coefficients of religion and institutional quality follow opposite directions with the following main finding standing out: the sign of the coefficients of institutional quality is negative and statistically significantly different from zero for all social preferences (P<0.001 for negative reciprocity, positive reciprocity and trust; P<0.05 for altruism).

Excluding countries from the sample

Our main analysis is based on a sample of 75 countries. As described above, we classified all respondents from Saudi Arabia, Jordan, United Arab Emirates and Egypt as Muslims. In order to show that our results are not biased by this assumption, we ran regressions excluding these four countries. Our main results were robust to these alternative specifications (see columns 1, 2, 5 and 7 in Tab. S4 for Fig. 1 Panel (A); Tab. S7 for Fig. 1 Panel (B); columns 1, 3, and 5 in Tab. S10 for Fig. 1 Panel (C); columns 5 and 6 in Tab. S12 for population size in Tab. 1; and columns 5 and 6 in Tab. S14 for Institutional quality in Tab. 1).

As described above, we also made assumptions for two countries with respect to institutional quality (Afghanistan and Bosnia Herzegovina). We also ran regressions excluding these two countries.

Our main results were robust to this alternative sample (see columns 9 and 10 in Tab. S14 for Institutional quality in Tab. 1).

Alternative measures of population size and institutional quality

In our main analysis we use average institutional quality and average population size between 2008 and 2012. We also ran regressions with the value of institutional quality and population size in the year 2012 (the year in which the survey was conducted). Our main results were robust to this alternative measure (see columns 7 and 8 in Tab. S12 for population size in Tab. 1; and columns 7 and 8 in Tab. S14 for Institutional quality in Tab. 1).

We also use the Worldwide Governance Indicators provided by the World Bank as alternative measures of institutional quality. In Fig. S10 we ran a regression of our main specification with the median split of four different measures: rule of law, government effectiveness, regulatory quality and control of corruption. As with our mains measure of institutional quality, members of world religions in countries with low institutional quality have statistically significantly *higher* levels of social preferences compared to religious people in countries with high institutional quality (rule of law: coef. |0.103|, P=0.063, government effectiveness: coef. |0.091|, P=0.097, regulatory quality: coef. |0.113|, P<0.05, and control of corruption: coef. |0.098|, P=0.088).

Using the mean split for institutional quality

To rule out that the median split of institutional quality drives the results of Institutional quality in Tab. 1, we ran regressions with the mean split of institutional quality. Fig. S11 shows that this exercise provided almost the same results. First, religious people are statistically significantly more prosocial compared to non-religious people across the two categories (for low institutional quality: coef. 0.272, P<0.001, for high institutional quality: coef. 0.137, P<0.001). Second, members of world religions in countries with low institutional quality have statistically significantly *higher* levels of

social preferences compared to religious people in countries with high institutional quality (coef. |0.136|, P<0.05).

Controlling for kinship intensity

In Fig. S12 we ran a regression of our main specification on prosociality from Table 1 with the median split of the kinship intensity index (which is provided by (Schulz et al. 2019) Results support our analysis: members of world religions in countries with high kinship intensity have marginally significantly *higher* levels of social preferences compared to religious people in countries with low kinship intensity (coef. |0.098|, P=0.067).

Controlling for variation within countries

Tab. S17 and Tab. S18 contain results from OLS regressions that control for potential confounders that may occur due to variation within countries. We replicate our main results of Fig. 1 Panel (A) (Tab. S17) and Fig. 1 Panel (B) and C (Tab. S18) by using subnational region fixed effects instead of country fixed effects. All of our main findings remained unchanged.

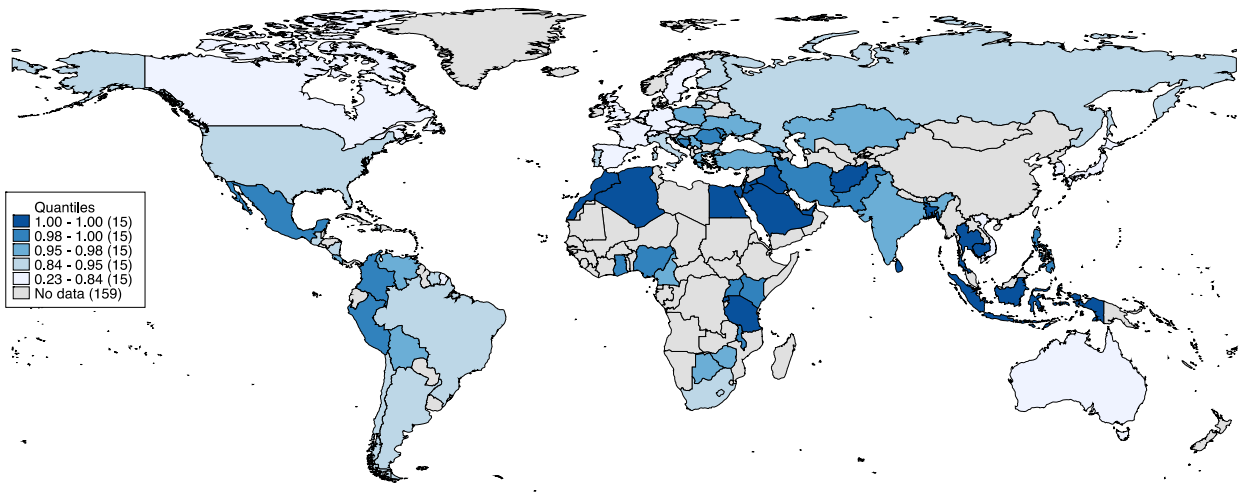


Fig. S1. Global map of world religion.

The map shows the fraction of respondents of the Global Preference Survey that reported a world religion (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism).

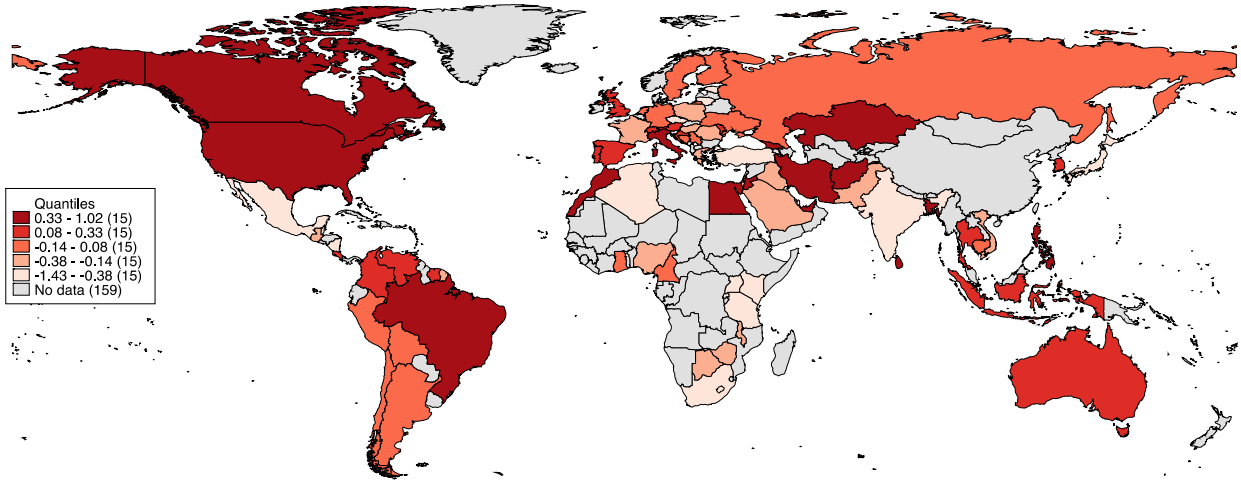


Fig. S2. Global map of prosocial preferences.

The map shows the global distribution of the prosocial preference index (i.e., the predicted principal component of positive reciprocity, altruism and trust).

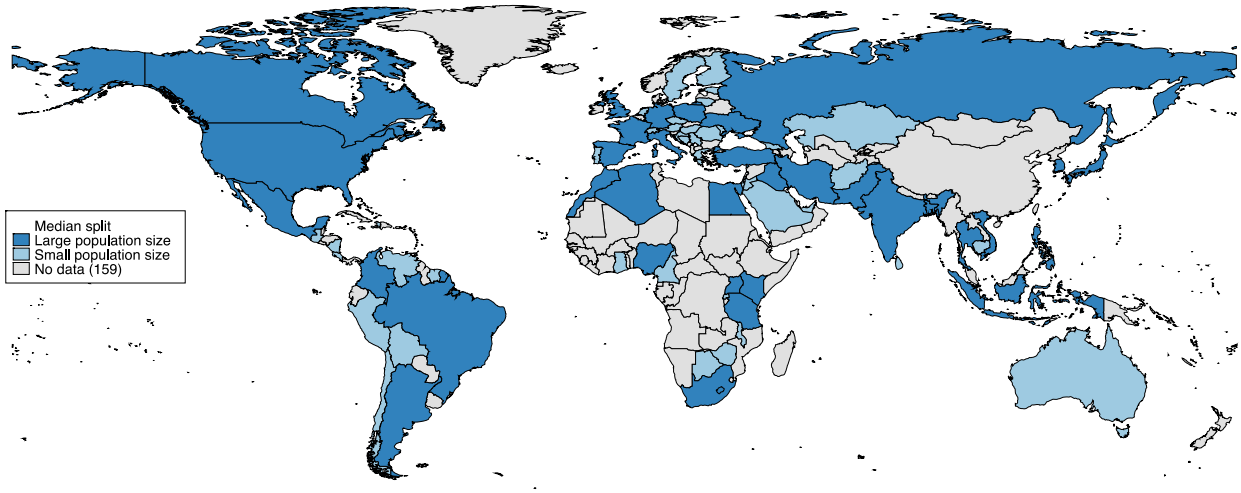


Fig. S3. Global map of population size.
The map shows the median split of population size across countries.

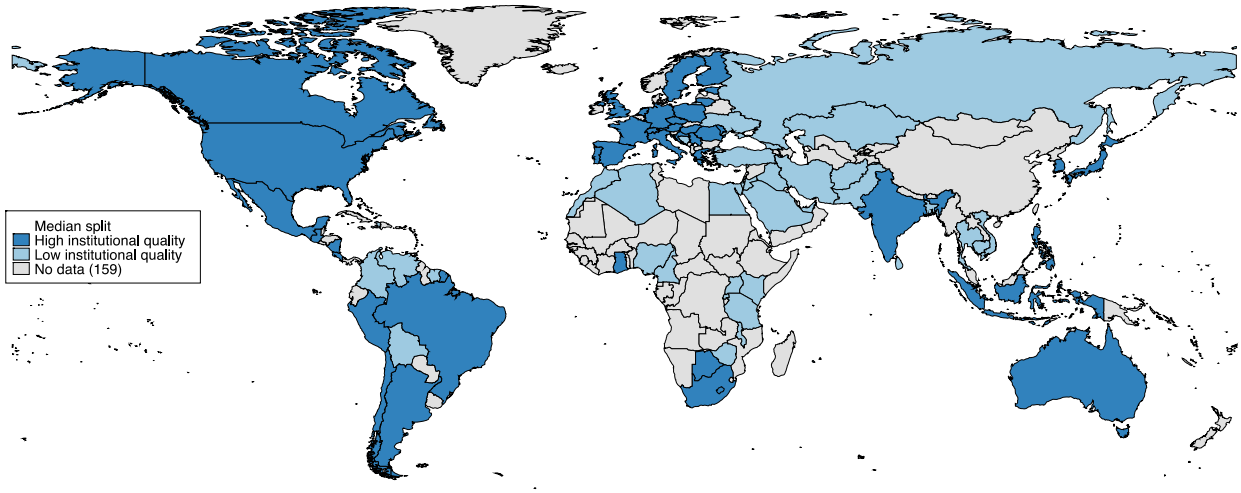


Fig. S4. Global map of institutional quality.
The map shows the median split of institutional quality across countries.

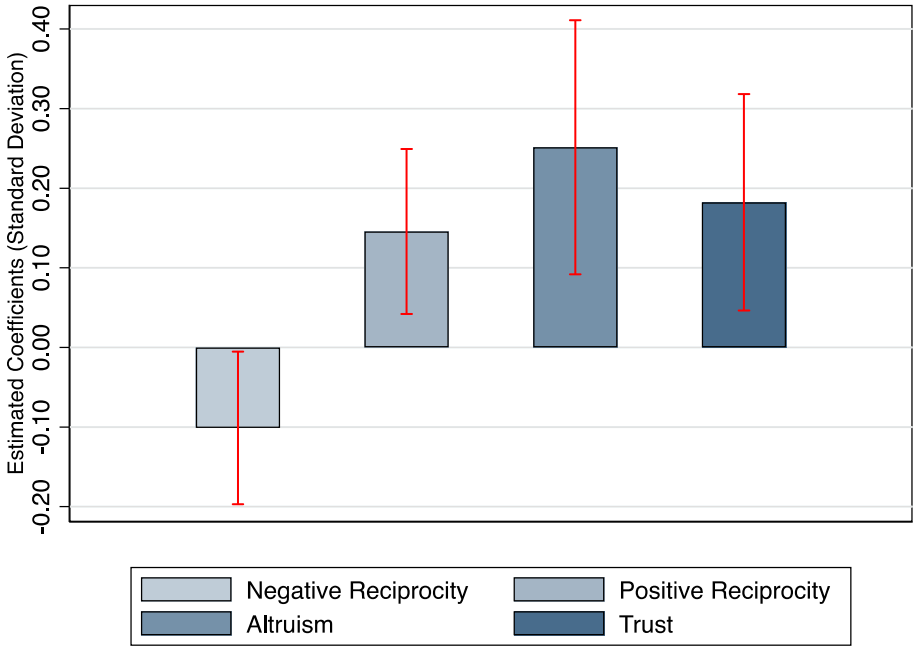


Fig. S5. World religions and Social Preferences – Continent fixed effects

The figure plots coefficients based on an OLS regression. Positive (negative) values indicate that members of world religions exhibited higher (lower) levels of the respective preference. World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and continent fixed effects. Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level.

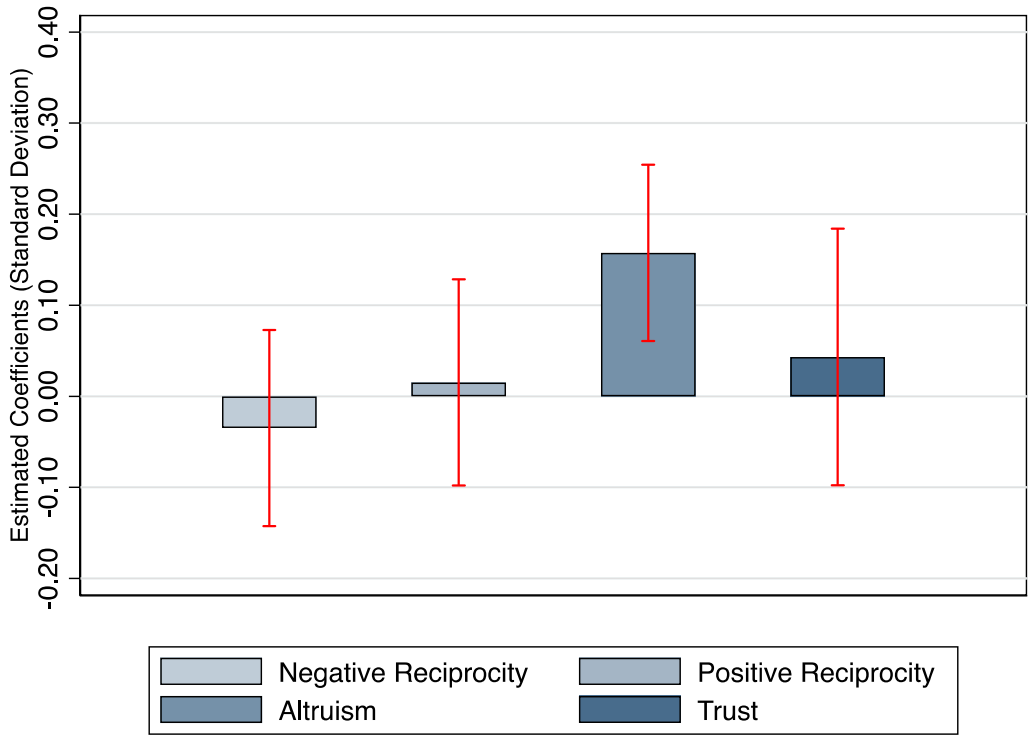


Fig. S6. Non-world religions and Social Preferences

The figure plots coefficients based on an OLS regression. Positive (negative) values indicate that members of non-world religions exhibited higher (lower) levels of the respective preference. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion (i.e., traditional and small god religions). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects. Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level.

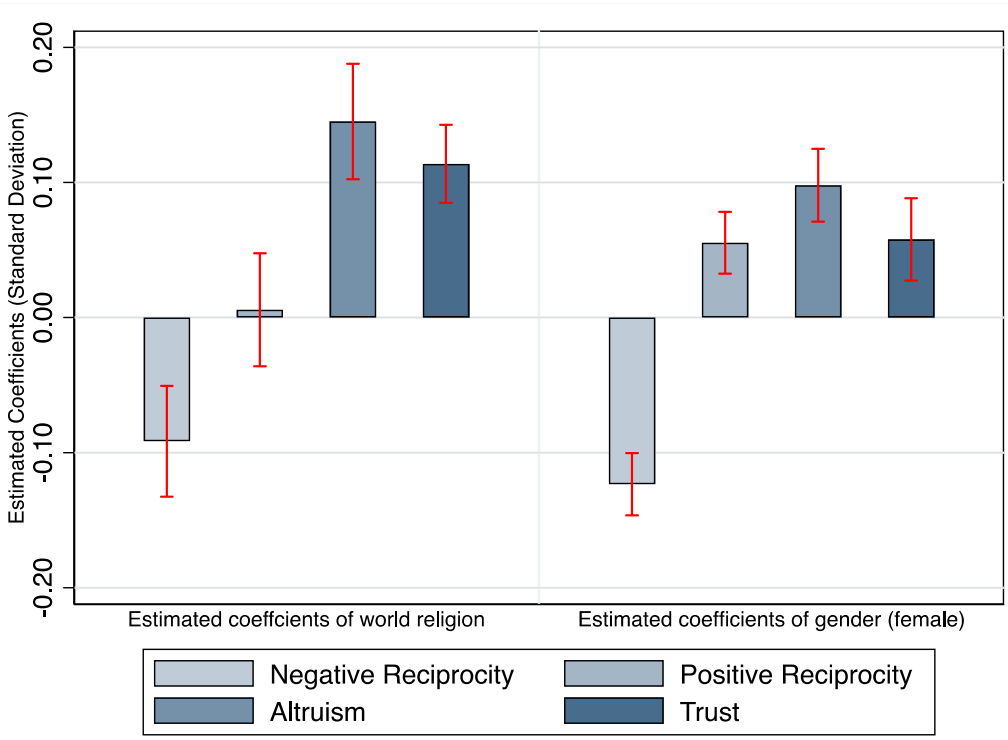


Fig. S7. Comparing effect sizes of gender and religion.

The figure plots coefficients based on an OLS regression. Positive values indicate that respondents exhibited higher levels of the respective preference, negative values indicate respondents exhibited lower levels of the respective preference. For each preference, the difference between members of world religions and non-religious people was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is non-religious (reference group), and 1 if respondent is part of a world religion. The difference between males and females was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is male, and 1 respondent is female. Specifications are based on columns (1) to (4) in Tab. S2. Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=75 countries).

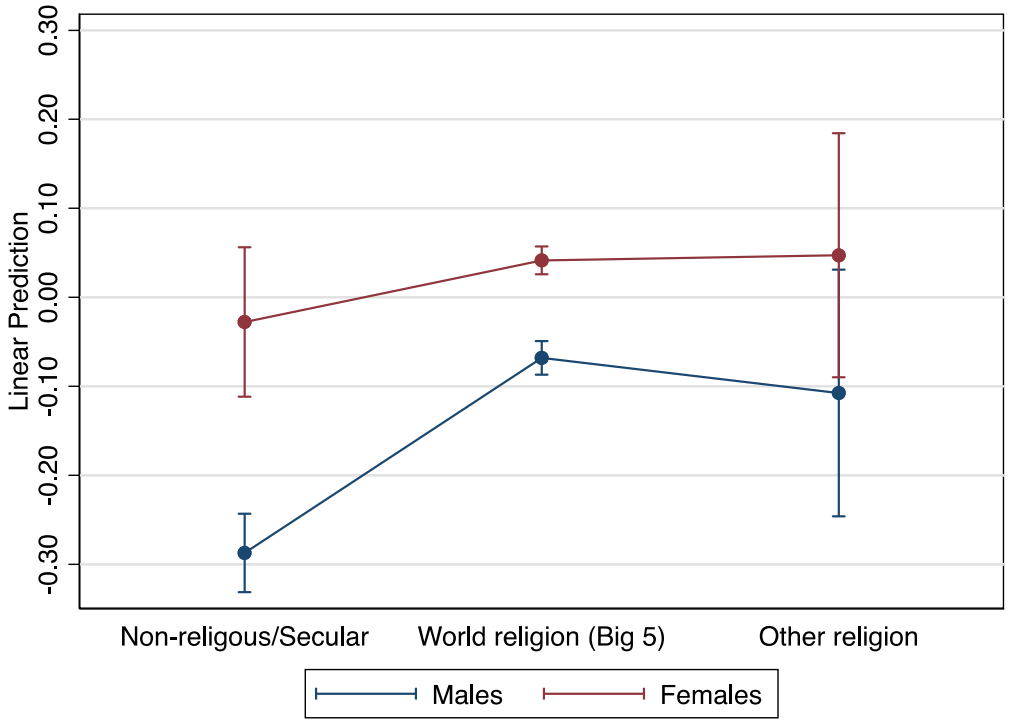


Fig. S8. Heterogeneous effects of religion by gender on prosocial preferences.

The figure plots linear predictions of an OLS regression. The coefficients can be interpreted as average marginal effects. The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that respondents exhibited higher levels of prosocial preferences, negative values indicate that respondents exhibited lower levels of prosocial preferences. The difference between members of world religions and non-religious people was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is non-religious (reference group), and 1 if respondent is part of a world religion. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (n=72,888). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=75 countries).

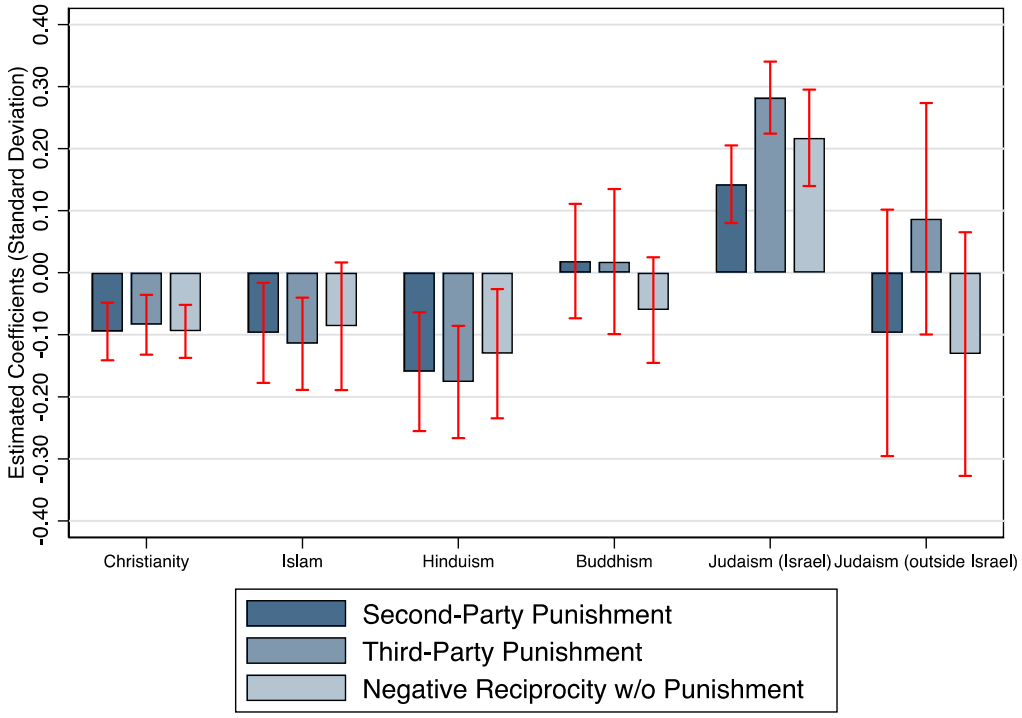
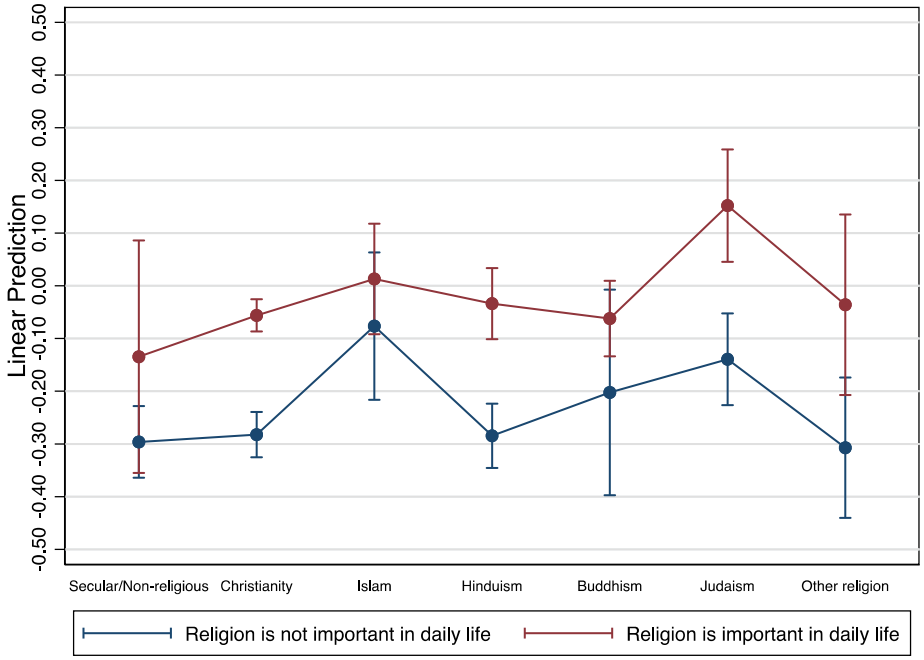


Fig. S9. Punishment patterns of Jewish Israelis and Jews living outside Israel.

The figure plots coefficients based on an OLS regression. Punishment patterns are obtained by decomposing the measure of negative reciprocity into its three components: second-party punishment, third-party punishment and negative reciprocity without punishment. Positive values indicate that members of world religions exhibited higher levels of the respective preference, negative values indicate that members of world religions exhibited lower levels of the respective preference. World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (n=72,888). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=75 countries).

(A) The heterogeneous effect of religion on prosocial preferences by religiosity.



(B) The heterogeneous effect of religion on prosocial preferences by religiosity, excluding non-religious people.

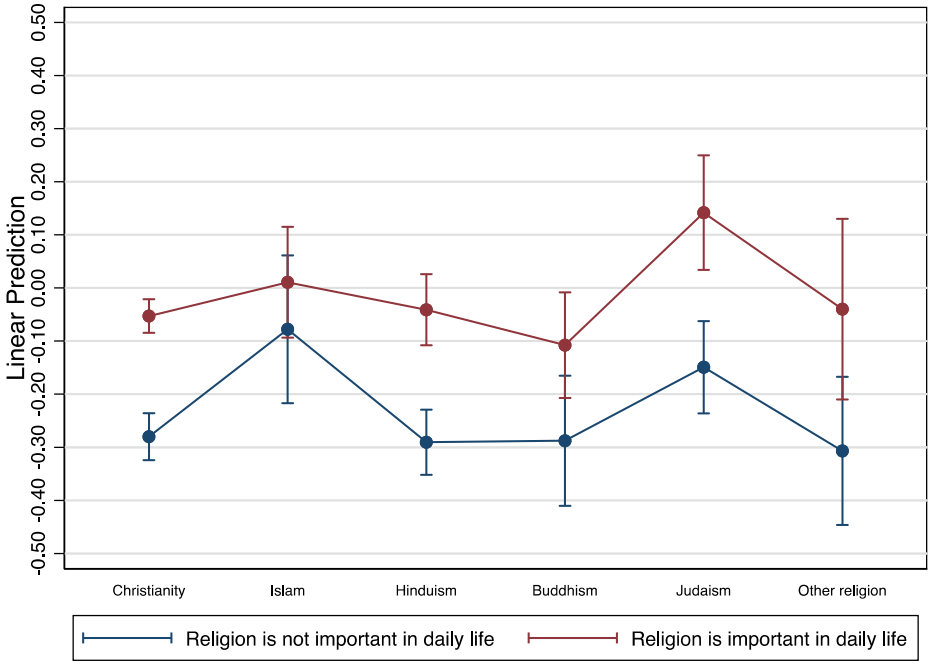


Fig. S10. The heterogeneous effect of religion on prosocial preferences by religiosity.

(A) The figure plots linear predictions of an OLS regression. The coefficients can be interpreted as average marginal effects. The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. Results are based on the specification in Column 3 of Tab. S5. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (n=56,023). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=60 countries).

(B) same as in (A) but excluding non-religious people form the sample (n=52,293). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=60 countries).

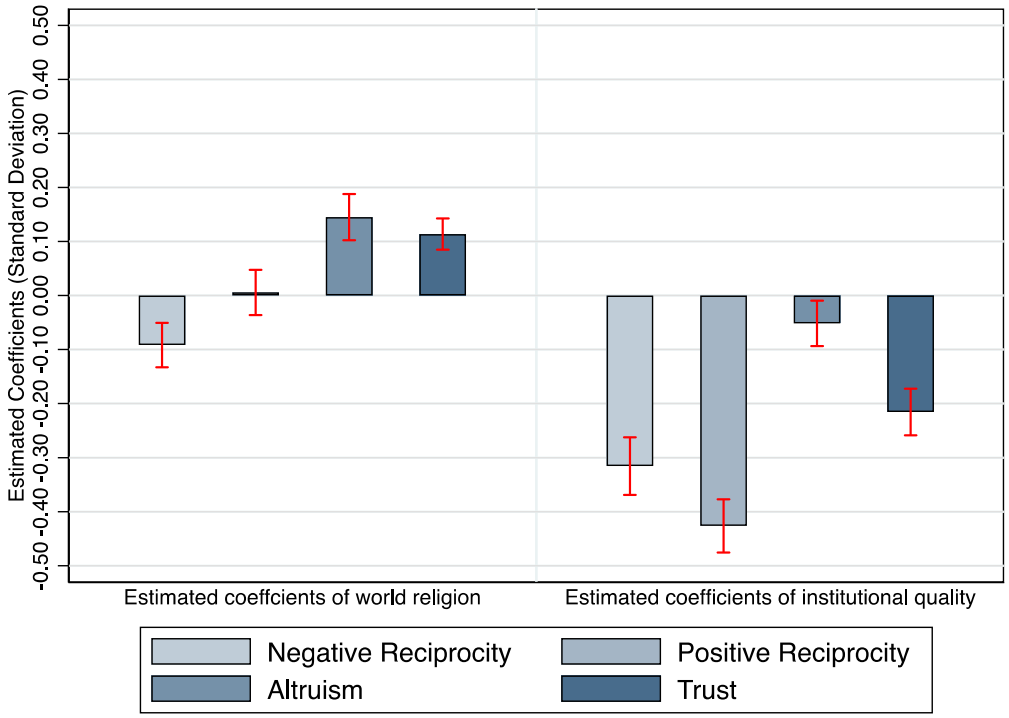


Fig. S11. Comparing effect sizes of religion and institutional quality.

The figure plots coefficients based on an OLS regression. Positive values indicate that respondents exhibited higher levels of the respective preference, negative values indicate that respondents exhibited lower levels of the respective preference. For each preference, the difference between members of world religions and non-religious people was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is non-religious (reference group), and 1 if respondent is part of a world religion. The difference between respondents living in countries with low vs. high institutional quality is calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is living in a country with low institutional quality (below median), and 1 if respondent is living in a country with high institutional quality (above median). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (n=73,140). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (n=75 countries).

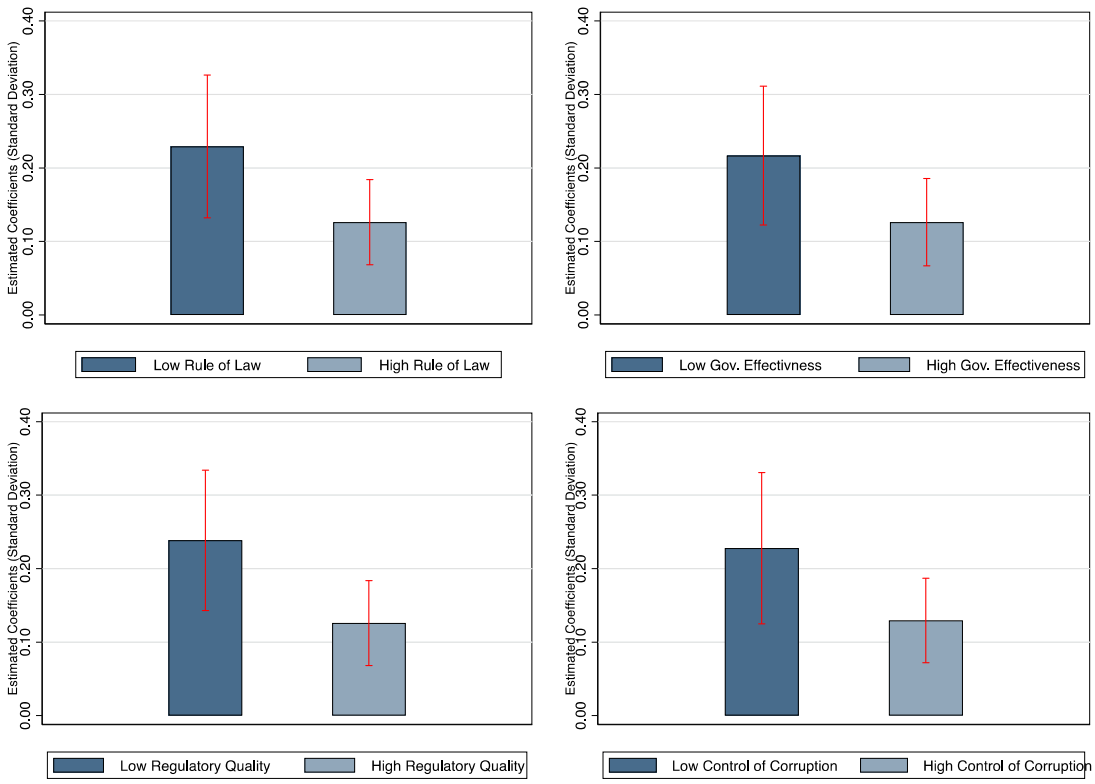


Fig. S12. Comparing alternative measures of institutional quality.

The figure plots coefficients based on an OLS regression. Positive values indicate that respondents exhibited higher levels of the respective preference, negative values indicate that respondents exhibited lower levels of the respective preference. World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. The difference between respondents living in countries with low vs. high institutional quality is calculated as the coefficient on a categorical variable that takes on the value 0 if respondent is living in a country with low institutional quality (below median), and 1 if respondent is living in a country with high institutional quality (above median). Measures of institutional quality are taken from the World Governance Indicators (rule of law, government effectiveness, regulatory quality, control of corruption). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (low rule of law: n=35,316, high rule of law: n=37,572; low government effectiveness: n=36,721, high government effectiveness: n=36,167; low regulatory quality: n= 34,474, high regulatory quality: n= 38,414; low control of corruption: n= 35,030 , high control of corruption: n= 37,858). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level.

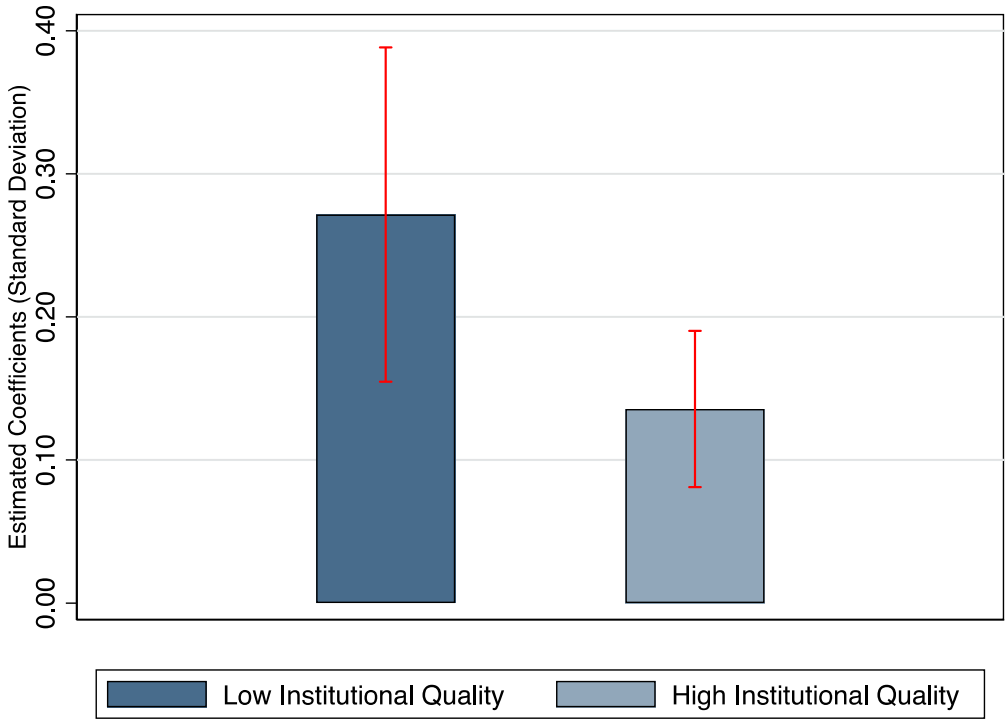


Fig. S13. Religion and institutional quality using the mean split.

The figure plots coefficients based on an OLS regression. The sample was split into respondents living in countries with low institutional quality (below mean) and respondents living in countries with high institutional quality (above mean). The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of the prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. For each preference, the difference between members of world religions and non-religious people was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is non-religious (reference group), and 1 if respondent is part of a world religion. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (low institutional quality: n= 24,140; high institutional quality: n=48,748). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (low institutional quality: n= 24 countries; high institutional quality: n=51 countries).

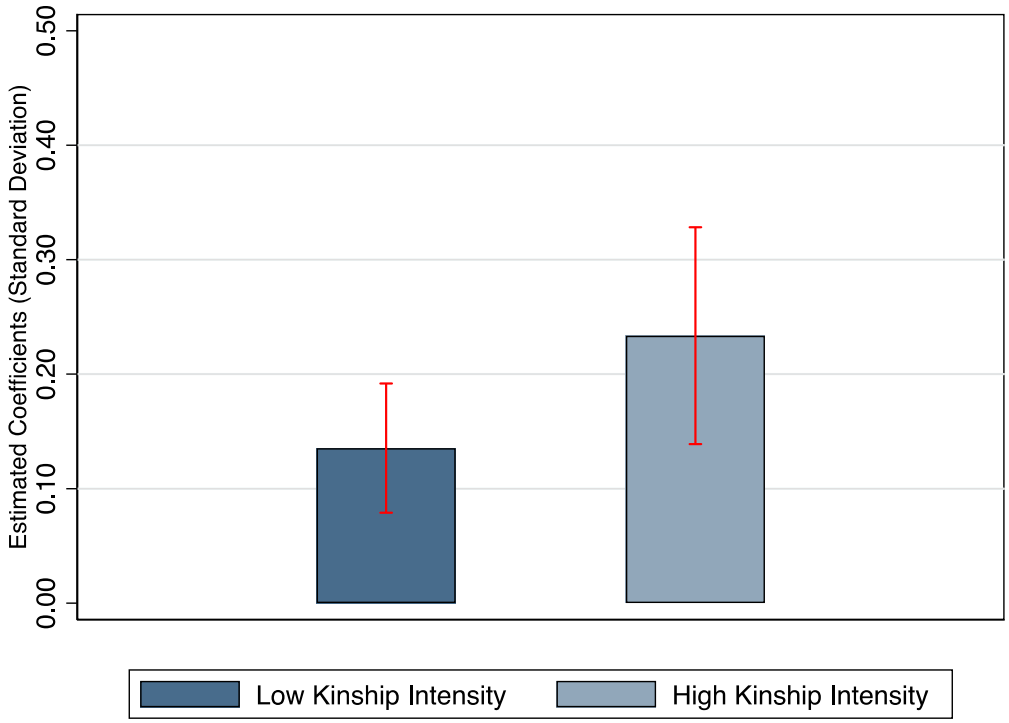


Fig. S14. Religion and kinship: Median split by kinship intensity.

The figure plots coefficients based on an OLS regression. The sample was split into respondents living in countries with low kinship intensity (below median) and respondents living in countries with high kinship intensity (above median). The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of the prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. For each preference, the difference between members of world religions and non-religious people was calculated as the coefficient on a dummy variable that takes on the value 0 if respondent is non-religious (reference group), and 1 if respondent is part of a world religion. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income, and country fixed effects (low kinship intensity: n= 42,283; high kinship intensity: n=30,605). Error bars indicate 95% confidence intervals obtained from standard errors clustered at the country level (low kinship intensity: n= 46 countries; high kinship intensity: n=29 countries).

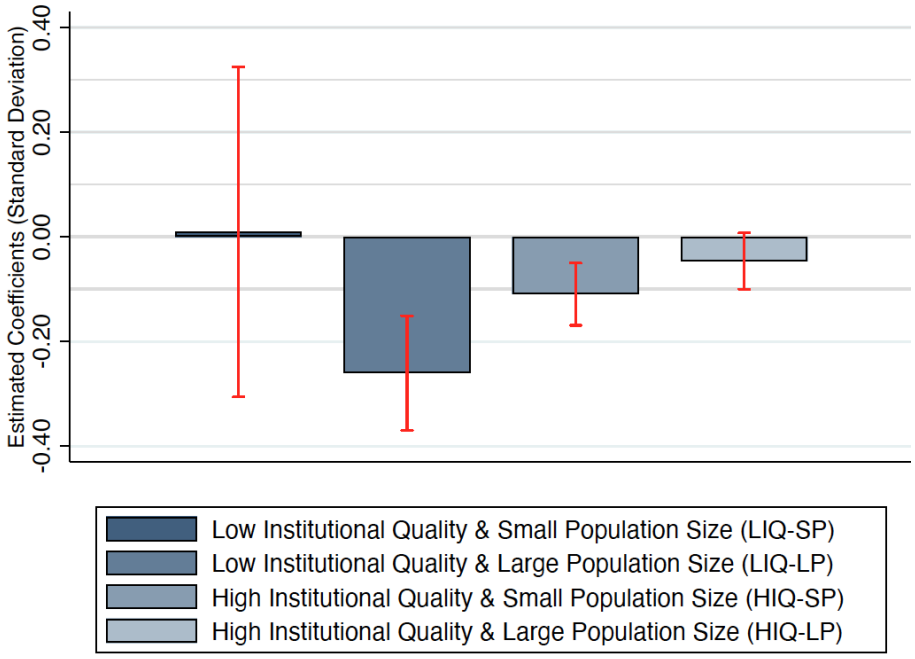


Fig. S15. Religion, population size and institutional quality

The figure plots coefficients based on an OLS regression. Dependent variable is negative reciprocity. For further notes see Figure 2 in the main text.

Country	Variable	Mean	Std. dev.
Afghanistan	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	29,316,276	
	Institutional quality	-7.00	
Algeria	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	36,017,456	
	Institutional quality	2.00	
Argentina	**World religion (Big Five)**	0.920	0.270
	Christianity	0.920	0.280
	Islam	0.003	0.056
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.002	0.045
	Other religion	0.008	0.091
	Non-religious/Secular	0.070	0.260
	Population size	40,869,232	
	Institutional quality	8.00	
Australia	**World religion (Big Five)**	0.710	0.450
	Christianity	0.680	0.470
	Islam	0.012	0.110
	Hinduism	0.007	0.084
	Buddhism	0.009	0.095
	Judaism	0.003	0.055
	Other religion	0.016	0.130
	Non-religious/Secular	0.270	0.450
	Population size	22,009,228	
	Institutional quality	10.00	
Austria	**World religion (Big Five)**	0.830	0.370
	Christianity	0.820	0.390
	Islam	0.011	0.110
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.001	0.032
	Other religion	0.001	0.032
	Non-religious/Secular	0.170	0.370
	Population size	8,369,972	
	Institutional quality	10.00	
Bangladesh	**World religion (Big Five)**	1.000	0.032
	Christianity	0.017	0.130
	Islam	0.860	0.340
	Hinduism	0.120	0.320
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.000	0.000
	Population size	147,617,200	
	Institutional quality	2.80	
Bolivia	**World religion (Big Five)**	0.980	0.140
	Christianity	0.980	0.150
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.008	0.090
	Non-religious/Secular	0.013	0.110
	Population size	10,049,091	
	Institutional quality	7.20	

Country	Variable	Mean	Std. dev.
Bosnia Herzegovina	**World religion (Big Five)**	1.000	0.045
	Christianity	0.670	0.470
	Islam	0.320	0.470
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.001	0.032
	Population size	3,692,366	
	Institutional quality	0.00	
Botswana	**World religion (Big Five)**	0.950	0.220
	Christianity	0.940	0.230
	Islam	0.006	0.078
	Hinduism	0.001	0.032
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.023	0.150
	Non-religious/Secular	0.026	0.160
	Population size	1,982,239	
	Institutional quality	8.00	
Brazil	**World religion (Big Five)**	0.930	0.250
	Christianity	0.930	0.260
	Islam	0.005	0.071
	Hinduism	0.002	0.045
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.035	0.180
	Non-religious/Secular	0.031	0.170
	Population size	195,686,464	
	Institutional quality	8.00	
Cambodia	**World religion (Big Five)**	1.000	0.000
	Christianity	0.004	0.063
	Islam	0.012	0.110
	Hinduism	0.002	0.045
	Buddhism	0.980	0.130
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	14,322,305	
	Institutional quality	2.00	
Cameroon	**World religion (Big Five)**	0.960	0.190
	Christianity	0.830	0.380
	Islam	0.130	0.340
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.031	0.170
	Non-religious/Secular	0.008	0.089
	Population size	20,355,096	
	Institutional quality	-4.00	
Canada	**World religion (Big Five)**	0.770	0.420
	Christianity	0.730	0.440
	Islam	0.019	0.140
	Hinduism	0.004	0.065
	Buddhism	0.007	0.086
	Judaism	0.007	0.086
	Other religion	0.025	0.160
	Non-religious/Secular	0.210	0.410
	Population size	33,986,892	
	Institutional quality	10.00	
Chile	**World religion (Big Five)**	0.900	0.300
	Christianity	0.900	0.300
	Islam	0.001	0.032
	Hinduism	0.001	0.032
	Buddhism	0.002	0.045
	Judaism	0.000	0.000
	Other religion	0.012	0.110
	Non-religious/Secular	0.085	0.280
	Population size	17,058,180	
	Institutional quality	10.00	

Country	Variable	Mean	Std. dev.
Colombia	**World religion (Big Five)**	0.990	0.110
	Christianity	0.980	0.130
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.002	0.045
	Judaism	0.002	0.045
	Other religion	0.004	0.064
	Non-religious/Secular	0.008	0.090
	Population size	45,193,536	
	Institutional quality	7.00	
Costa Rica	**World religion (Big Five)**	0.950	0.210
	Christianity	0.950	0.230
	Islam	0.001	0.032
	Hinduism	0.003	0.055
	Buddhism	0.001	0.032
	Judaism	0.001	0.032
	Other religion	0.016	0.130
	Non-religious/Secular	0.031	0.170
	Population size	4,576,466	
	Institutional quality	10.00	
Croatia	**World religion (Big Five)**	0.960	0.190
	Christianity	0.960	0.200
	Islam	0.004	0.065
	Hinduism	0.000	0.000
	Buddhism	0.002	0.046
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.036	0.190
	Population size	4,291,699	
	Institutional quality	9.00	
Czech Republic	**World religion (Big Five)**	0.230	0.420
	Christianity	0.220	0.420
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.001	0.033
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.770	0.420
	Population size	10,461,964	
	Institutional quality	9.00	
Egypt	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	82,896,720	
	Institutional quality	-2.80	
Estonia	**World religion (Big Five)**	0.620	0.480
	Christianity	0.620	0.490
	Islam	0.001	0.034
	Hinduism	0.001	0.034
	Buddhism	0.002	0.048
	Judaism	0.001	0.034
	Other religion	0.017	0.130
	Non-religious/Secular	0.360	0.480
	Population size	1,330,643	
	Institutional quality	9.00	
Finland	**World religion (Big Five)**	0.850	0.350
	Christianity	0.850	0.360
	Islam	0.001	0.032
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.015	0.120
	Non-religious/Secular	0.130	0.340
	Population size	5,363,573	
	Institutional quality	10.00	
France	**World religion (Big Five)**	0.690	0.460

Country	Variable	Mean	Std. dev.
	Christianity	0.630	0.480
	Islam	0.053	0.220
	Hinduism	0.000	0.000
	Buddhism	0.001	0.033
	Judaism	0.003	0.057
	Other religion	0.004	0.066
	Non-religious/Secular	0.310	0.460
	Population size	65,022,424	
	Institutional quality	9.00	
Georgia	**World religion (Big Five)**	1.000	0.000
	Christianity	0.940	0.240
	Islam	0.063	0.240
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	3,786,976	
	Institutional quality	6.00	
Germany	**World religion (Big Five)**	0.670	0.470
	Christianity	0.660	0.470
	Islam	0.012	0.110
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.001	0.032
	Other religion	0.002	0.045
	Non-religious/Secular	0.320	0.470
	Population size	81,298,032	
	Institutional quality	10.00	
Ghana	**World religion (Big Five)**	0.990	0.100
	Christianity	0.890	0.310
	Islam	0.096	0.290
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.010	0.100
	Non-religious/Secular	0.001	0.032
	Population size	24,779,708	
	Institutional quality	8.00	
Greece	**World religion (Big Five)**	0.980	0.150
	Christianity	0.940	0.230
	Islam	0.034	0.180
	Hinduism	0.001	0.032
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.022	0.150
	Population size	11,091,222	
	Institutional quality	10.00	
Guatemala	**World religion (Big Five)**	0.920	0.270
	Christianity	0.920	0.270
	Islam	0.000	0.000
	Hinduism	0.001	0.032
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.081	0.270
	Population size	14,634,538	
	Institutional quality	8.00	
Haiti	**World religion (Big Five)**	0.940	0.230
	Christianity	0.920	0.280
	Islam	0.016	0.130
	Hinduism	0.002	0.045
	Buddhism	0.006	0.078
	Judaism	0.000	0.000
	Other religion	0.036	0.190
	Non-religious/Secular	0.022	0.150
	Population size	9,949,040	
	Institutional quality	2.00	
Hungary	**World religion (Big Five)**	0.860	0.350
	Christianity	0.860	0.350

Country	Variable	Mean	Std. dev.
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.001	0.032
	Other religion	0.002	0.046
	Non-religious/Secular	0.140	0.350
	Population size	9,990,590	
	Institutional quality	10.00	
India	**World religion (Big Five)**	0.970	0.170
	Christianity	0.026	0.160
	Islam	0.160	0.370
	Hinduism	0.780	0.410
	Buddhism	0.006	0.074
	Judaism	0.000	0.000
	Other religion	0.028	0.170
	Non-religious/Secular	0.000	0.000
	Population size	1,233,749,760	
	Institutional quality	9.00	
Indonesia	**World religion (Big Five)**	1.000	0.000
	Christianity	0.110	0.310
	Islam	0.870	0.340
	Hinduism	0.019	0.140
	Buddhism	0.003	0.055
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	241,898,624	
	Institutional quality	8.00	
Iran	**World religion (Big Five)**	1.000	0.060
	Christianity	0.003	0.057
	Islam	0.990	0.085
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.020
	Other religion	0.002	0.040
	Non-religious/Secular	0.002	0.045
	Population size	73,796,552	
	Institutional quality	-6.80	
Iraq	**World religion (Big Five)**	1.000	0.000
	Christianity	0.032	0.180
	Islam	0.970	0.180
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	29,943,240	
	Institutional quality	3.00	
Israel	**World religion (Big Five)**	0.970	0.170
	Christianity	0.031	0.170
	Islam	0.160	0.360
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.780	0.410
	Other religion	0.014	0.120
	Non-religious/Secular	0.016	0.130
	Population size	7,618,860	
	Institutional quality	6.00	
Italy	**World religion (Big Five)**	0.900	0.310
	Christianity	0.880	0.320
	Islam	0.006	0.078
	Hinduism	0.001	0.032
	Buddhism	0.003	0.055
	Judaism	0.001	0.032
	Other religion	0.002	0.045
	Non-religious/Secular	0.100	0.300
	Population size	59,223,736	
	Institutional quality	10.00	
Japan	**World religion (Big Five)**	0.300	0.460
	Christianity	0.024	0.150
	Islam	0.001	0.032

Country	Variable	Mean	Std. dev.
	Hinduism	0.001	0.032
	Buddhism	0.270	0.450
	Judaism	0.000	0.000
	Other religion	0.031	0.170
	Non-religious/Secular	0.670	0.470
	Population size	127,928,400	
	Institutional quality	10.00	
Jordan	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	7,293,056	
	Institutional quality	-3.00	
Kazakhstan	**World religion (Big Five)**	0.980	0.150
	Christianity	0.320	0.470
	Islam	0.660	0.470
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.022	0.150
	Population size	16,287,597	
	Institutional quality	-6.00	
Kenya	**World religion (Big Five)**	0.980	0.130
	Christianity	0.910	0.280
	Islam	0.067	0.250
	Hinduism	0.001	0.032
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.006	0.077
	Non-religious/Secular	0.012	0.110
	Population size	42,049,224	
	Institutional quality	7.60	
Lithuania	**World religion (Big Five)**	0.920	0.270
	Christianity	0.920	0.270
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.080	0.270
	Population size	3,094,864	
	Institutional quality	10.00	
Malawi	**World religion (Big Five)**	0.980	0.130
	Christianity	0.870	0.340
	Islam	0.110	0.320
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.015	0.120
	Non-religious/Secular	0.002	0.045
	Population size	14,550,755	
	Institutional quality	6.00	
Mexico	**World religion (Big Five)**	1.000	0.055
	Christianity	1.000	0.055
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.003	0.055
	Population size	114,068,352	
	Institutional quality	8.00	
Moldova	**World religion (Big Five)**	0.980	0.130
	Christianity	0.980	0.130
	Islam	0.001	0.032
	Hinduism	0.000	0.000

Country	Variable	Mean	Std. dev.
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.015	0.120
	Population size	2,862,618	
	Institutional quality	9.00	
Morocco	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	32,366,608	
	Institutional quality	-5.20	
Netherlands	**World religion (Big Five)**	0.600	0.490
	Christianity	0.560	0.500
	Islam	0.028	0.160
	Hinduism	0.008	0.087
	Buddhism	0.005	0.071
	Judaism	0.000	0.000
	Other religion	0.039	0.190
	Non-religious/Secular	0.360	0.480
	Population size	16,607,882	
	Institutional quality	10.00	
Nicaragua	**World religion (Big Five)**	0.960	0.200
	Christianity	0.960	0.200
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.001	0.033
	Non-religious/Secular	0.041	0.200
	Population size	5,824,518	
	Institutional quality	9.00	

Country	Variable	Mean	Std. dev.
Nigeria	**World religion (Big Five)**	0.990	0.089
	Christianity	0.670	0.470
	Islam	0.320	0.460
	Hinduism	0.001	0.032
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.008	0.089
	Non-religious/Secular	0.000	0.000
	Population size	158,626,320	
	Institutional quality	4.00	
Pakistan	**World religion (Big Five)**	1.000	0.045
	Christianity	0.043	0.200
	Islam	0.940	0.230
	Hinduism	0.013	0.110
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.002	0.045
	Non-religious/Secular	0.000	0.000
	Population size	179,444,256	
	Institutional quality	5.60	
Peru	**World religion (Big Five)**	0.990	0.110
	Christianity	0.990	0.110
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.000	0.000
	Non-religious/Secular	0.011	0.110
	Population size	29,030,750	
	Institutional quality	9.00	
Philippines	**World religion (Big Five)**	1.000	0.045
	Christianity	0.950	0.210
	Islam	0.046	0.210
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000

Country	Variable	Mean	Std. dev.
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.001	0.032
	Population size	94,013,120	
	Institutional quality	8.00	
Poland	**World religion (Big Five)**	0.980	0.140
	Christianity	0.980	0.150
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.001	0.033
	Judaism	0.000	0.000
	Other religion	0.001	0.033
	Non-religious/Secular	0.020	0.140
	Population size	38,089,316	
	Institutional quality	10.00	
Portugal	**World religion (Big Five)**	0.880	0.320
	Christianity	0.880	0.330
	Islam	0.001	0.032
	Hinduism	0.001	0.032
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.006	0.079
	Non-religious/Secular	0.110	0.320
	Population size	10,554,386	
	Institutional quality	10.00	
Romania	**World religion (Big Five)**	0.990	0.078
	Christianity	0.990	0.095
	Islam	0.003	0.055
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.006	0.078
	Population size	20,271,560	
	Institutional quality	9.00	
Russia	**World religion (Big Five)**	0.920	0.280
	Christianity	0.870	0.340
	Islam	0.033	0.180
	Hinduism	0.000	0.000
	Buddhism	0.017	0.130
	Judaism	0.002	0.047
	Other religion	0.019	0.140
	Non-religious/Secular	0.064	0.240
	Population size	142,907,936	
	Institutional quality	4.00	
Rwanda	**World religion (Big Five)**	1.000	0.032
	Christianity	0.970	0.170
	Islam	0.027	0.160
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.001	0.032
	Population size	10,037,930	
	Institutional quality	-3.60	
Saudi Arabia	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	27,472,636	
	Institutional quality	-10.00	
Serbia	**World religion (Big Five)**	0.980	0.140
	Christianity	0.930	0.260
	Islam	0.053	0.230
	Hinduism	0.000	0.000
	Buddhism	0.001	0.031
	Judaism	0.000	0.000

Country	Variable	Mean	Std. dev.
	Other religion	0.001	0.031
	Non-religious/Secular	0.018	0.130
	Population size	7,279,128	
	Institutional quality	8.00	
South Africa	**World religion (Big Five)**	0.920	0.270
	Christianity	0.870	0.330
	Islam	0.042	0.200
	Hinduism	0.008	0.090
	Buddhism	0.002	0.045
	Judaism	0.000	0.000
	Other religion	0.066	0.250
	Non-religious/Secular	0.010	0.100
	Population size	51,262,324	
	Institutional quality	9.00	
South Korea	**World religion (Big Five)**	0.580	0.490
	Christianity	0.380	0.490
	Islam	0.001	0.032
	Hinduism	0.000	0.000
	Buddhism	0.200	0.400
	Judaism	0.000	0.000
	Other religion	0.008	0.090
	Non-religious/Secular	0.410	0.490
	Population size	49,610,628	
	Institutional quality	8.00	
Spain	**World religion (Big Five)**	0.790	0.410
	Christianity	0.780	0.420
	Islam	0.011	0.110
	Hinduism	0.000	0.000
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.004	0.064
	Non-religious/Secular	0.210	0.410
	Population size	46,481,940	
	Institutional quality	10.00	
Sri Lanka	**World religion (Big Five)**	1.000	0.000
	Christianity	0.069	0.250
	Islam	0.110	0.310
	Hinduism	0.110	0.310
	Buddhism	0.720	0.450
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	20,238,580	
	Institutional quality	4.00	
Suriname	**World religion (Big Five)**	0.940	0.240
	Christianity	0.520	0.500
	Islam	0.140	0.350
	Hinduism	0.280	0.450
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.024	0.150
	Non-religious/Secular	0.034	0.180
	Population size	529,158	
	Institutional quality	5.00	
Sweden	**World religion (Big Five)**	0.810	0.390
	Christianity	0.790	0.410
	Islam	0.015	0.120
	Hinduism	0.000	0.000
	Buddhism	0.003	0.058
	Judaism	0.001	0.034
	Other religion	0.010	0.100
	Non-religious/Secular	0.180	0.390
	Population size	9,372,973	
	Institutional quality	10.00	
Switzerland	**World religion (Big Five)**	0.830	0.370
	Christianity	0.810	0.390
	Islam	0.014	0.120
	Hinduism	0.002	0.046
	Buddhism	0.002	0.046
	Judaism	0.002	0.046
	Other religion	0.011	0.100

Country	Variable	Mean	Std. dev.
	Non-religious/Secular	0.160	0.360
	Population size	7,825,135	
	Institutional quality	10.00	
Tanzania	**World religion (Big Five)**	1.000	0.032
	Christianity	0.630	0.480
	Islam	0.370	0.480
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.001	0.032
	Non-religious/Secular	0.000	0.000
	Population size	44,400,024	
	Institutional quality	-1.00	
Thailand	**World religion (Big Five)**	1.000	0.000
	Christianity	0.002	0.045
	Islam	0.055	0.230
	Hinduism	0.000	0.000
	Buddhism	0.940	0.230
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	67,189,440	
	Institutional quality	5.20	
Turkey	**World religion (Big Five)**	0.980	0.140
	Christianity	0.001	0.032
	Islam	0.980	0.140
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.007	0.084
	Non-religious/Secular	0.012	0.110
	Population size	72,432,776	
	Institutional quality	7.80	
Uganda	**World religion (Big Five)**	0.990	0.083
	Christianity	0.810	0.390
	Islam	0.180	0.380
	Hinduism	0.001	0.032
	Buddhism	0.001	0.032
	Judaism	0.000	0.000
	Other religion	0.006	0.077
	Non-religious/Secular	0.001	0.032
	Population size	32,461,418	
	Institutional quality	-1.00	
Ukraine	**World religion (Big Five)**	0.970	0.170
	Christianity	0.960	0.200
	Islam	0.010	0.097
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.001	0.032
	Non-religious/Secular	0.029	0.170
	Population size	45,896,320	
	Institutional quality	6.40	
United Arab Emirates	**World religion (Big Five)**	1.000	0.000
	Christianity	0.000	0.000
	Islam	1.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.000	0.000
	Non-religious/Secular	0.000	0.000
	Population size	8,329,044	
	Institutional quality	-8.00	
United Kingdom	**World religion (Big Five)**	0.680	0.470
	Christianity	0.650	0.480
	Islam	0.019	0.140
	Hinduism	0.007	0.084
	Buddhism	0.003	0.055
	Judaism	0.003	0.055
	Other religion	0.120	0.330

Country	Variable	Mean	Std. dev.
	Non-religious/Secular	0.200	0.400
	Population size	62,761,732	
	Institutional quality	10.00	
United States	**World religion (Big Five)**	0.840	0.370
	Christianity	0.800	0.400
	Islam	0.008	0.089
	Hinduism	0.001	0.032
	Buddhism	0.006	0.077
	Judaism	0.020	0.140
	Other religion	0.022	0.150
	Non-religious/Secular	0.140	0.350
	Population size	309,115,008	
	Institutional quality	10.00	
Venezuela	**World religion (Big Five)**		0.180
	Christianity	0.960	0.200
	Islam	0.006	0.078
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.000	0.000
	Other religion	0.008	0.089
	Non-religious/Secular	0.026	0.160
	Population size	28,471,520	
	Institutional quality	-1.40	
Vietnam	**World religion (Big Five)**	0.380	0.490
	Christianity	0.099	0.300
	Islam	0.000	0.000
	Hinduism	0.000	0.000
	Buddhism	0.280	0.450
	Judaism	0.000	0.000
	Other religion	0.033	0.180
	Non-religious/Secular	0.580	0.490
	Population size	87,995,472	
	Institutional quality	-7.00	
Zimbabwe	**World religion (Big Five)**	0.950	0.220
	Christianity	0.940	0.240
	Islam	0.009	0.095
	Hinduism	0.000	0.000
	Buddhism	0.000	0.000
	Judaism	0.001	0.032
	Other religion	0.034	0.180
	Non-religious/Secular	0.016	0.130
	Population size	12,722,737	
	Institutional quality	0.00	

Tab S1. Summary statistics of religion, population size and institutional quality broken down by country.

	(1) Negative reciprocity	(2) Positive reciprocity	(3) Altruism	(4) Trust
World religion (Big 5)	-0.092***	0.006	0.145***	0.114***
	(0.021)	(0.021)	(0.021)	(0.014)
Non-world religion	-0.035	0.015	0.157**	0.043
	(0.054)	(0.057)	(0.049)	(0.071)
Age	-0.408*	0.805***	-0.169	0.297
	(0.198)	(0.169)	(0.148)	(0.190)
Age squared	-0.389+	-0.830***	0.236	0.052
	(0.197)	(0.178)	(0.159)	(0.187)
1 if female	-0.123***	0.055***	0.098***	0.058***
	(0.012)	(0.011)	(0.014)	(0.015)
Subj. math skills	0.039***	0.032***	0.037***	0.059***
	(0.004)	(0.003)	(0.003)	(0.003)
Income bracket	0.005**	0.012***	0.010***	-0.001
	(0.002)	(0.002)	(0.001)	(0.001)
Education level	-0.000	0.071***	0.076***	-0.039**
	(0.010)	(0.012)	(0.012)	(0.012)
Constant	0.420***	-0.255***	-0.364***	-0.118**
	(0.053)	(0.050)	(0.038)	(0.040)
Country FE	Yes	Yes	Yes	Yes
Pseudo-R2	0.12	0.13	0.14	0.11
Observations	72888	74070	73854	73140

Tab. S2. Differences in social preferences between religious and non-religious people. Main results.

Coefficients are based on OLS regressions. Positive values indicate that religious people exhibited higher levels of the respective preference, negative values indicate that religious people exhibited lower levels of the respective preference. World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Negative reciprocity	(2) Negative reciprocity	(3) Positive reciprocity	(4) Positive reciprocity	(5) Altruism	(6) Altruism	(7) Trust	(8) Trust
World religion (Big 5)	-0.164***	-0.093***	-0.009	0.000	0.140***	0.140***	0.137***	0.118***
	(0.024)	(0.021)	(0.022)	(0.021)	(0.022)	(0.022)	(0.016)	(0.016)
Non-world religion	-0.115*	-0.057	-0.007	0.001	0.142***	0.144***	0.042	0.027
	(0.058)	(0.057)	(0.058)	(0.059)	(0.051)	(0.051)	(0.072)	(0.073)
Age		-0.407**		0.944***		-0.046		0.169
		(0.192)		(0.192)		(0.147)		(0.191)
Age squared		-0.492**		-1.159***		-0.084		0.106
		(0.193)		(0.196)		(0.153)		(0.183)
1 if female		-0.152***		0.023**		0.064***		0.022
		(0.011)		(0.011)		(0.013)		(0.014)
Constant	0.498***	0.674***	0.308***	0.124***	0.038*	0.029	0.181***	0.128***
	(0.024)	(0.042)	(0.022)	(0.046)	(0.022)	(0.035)	(0.016)	(0.042)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.08	0.10	0.11	0.11	0.12	0.12	0.08	0.08
Observations	73985	73802	75451	75262	75182	74997	74180	74001

Tab. S3. Differences in social preferences between religious and non-religious people. Alternative specifications.

Coefficients are based on OLS regressions. Positive values indicate that religious people exhibited higher levels of the respective preference, negative values indicate that religious people exhibited lower levels of the respective preference. World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion. Columns (1), (3), (5) and (7) show estimates on an unconditional model (no controls except of country fixed effects). Columns (2), (4), (6) and (8) show estimates of a model with exogenous individual controls (i.e., gender, age, age squared) and country fixed effects. Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Negative reciprocity	(2) Negative reciprocity	(3) Positive reciprocity	(4) Positive reciprocity	(5) Altruism	(6) Altruism	(7) Trust	(8) Trust
World religion (Big 5)	-0.091***	-0.086***	0.007	-0.060**	0.146***	0.061**	0.115***	0.076***
	(0.021)	(0.028)	(0.021)	(0.027)	(0.022)	(0.029)	(0.014)	(0.021)
Non-world religion	-0.034	-0.005	0.016	-0.050	0.158***	0.098*	0.044	-0.018
	(0.054)	(0.060)	(0.057)	(0.065)	(0.049)	(0.052)	(0.071)	(0.087)
Age	-0.395*	-0.308	0.784***	0.729***	-0.208	-0.171	0.285	0.158
	(0.204)	(0.204)	(0.173)	(0.188)	(0.151)	(0.144)	(0.201)	(0.163)
Age squared	-0.400*	-0.490**	-0.816***	-0.793***	0.266	0.123	0.056	0.121
	(0.203)	(0.210)	(0.183)	(0.203)	(0.162)	(0.151)	(0.197)	(0.173)
1 if female	-0.126***	-0.119***	0.053***	0.060***	0.103***	0.104***	0.053***	0.054***
	(0.012)	(0.013)	(0.012)	(0.013)	(0.014)	(0.014)	(0.016)	(0.016)
Subj. math skills	0.039***	0.040***	0.031***	0.032***	0.036***	0.038***	0.058***	0.059***
	(0.004)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
Income bracket	0.006***	0.006***	0.013***	0.012***	0.011***	0.011***	-0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Education level	0.004	-0.005	0.076***	0.080***	0.081***	0.089***	-0.038***	-0.032**
	(0.010)	(0.009)	(0.011)	(0.013)	(0.012)	(0.012)	(0.012)	(0.013)
WP119 Religion		-0.070***		0.094***		0.174***		0.089***
Important		(0.017)		(0.026)		(0.018)		(0.024)
Constant	0.409***	0.459***	-0.257***	-0.276***	-0.361***	-0.468***	-0.110***	-0.149***
	(0.055)	(0.062)	(0.051)	(0.058)	(0.038)	(0.046)	(0.040)	(0.049)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.11	0.11	0.13	0.13	0.13	0.13	0.10	0.10
Observations	68871	56031	70038	56963	69825	56785	69116	56230

Tab. S4. Differences in social preferences between religious and non-religious people. Excluding countries from the sample and controlling for religiosity.

Coefficients are based on OLS regressions (for further notes see Tab. S2 and S3). Columns (1), (3), (5) and (7) show models with a sample that excludes the following Muslim countries: Saudi Arabia, Jordan, United Arab Emirates and Egypt (see Extended Methods and Data above). Columns (2), (4), (6) and (8) show a model that accounts for religiosity by adding a binary control variable that takes the value of 0 if religion is not important in a respondent's daily life, and 1 if religion is important in daily life. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index	(2) Prosocial Index	(3) Prosocial Index	(4) Prosocial Index I	(5) Prosocial Index II
Christianity	0.136***	0.133***	0.138***	0.178***	0.125***
	(0.018)	(0.018)	(0.018)	(0.016)	(0.018)
Islam	0.214***	0.211***	0.236***	0.285***	0.219***
	(0.028)	(0.028)	(0.028)	(0.025)	(0.028)
Hinduism	0.182***	0.181***	0.193***	0.233***	0.174***
	(0.045)	(0.045)	(0.045)	(0.041)	(0.045)
Buddhism	0.193***	0.191***	0.192***	0.200***	0.186***
	(0.040)	(0.040)	(0.040)	(0.036)	(0.040)
Judaism	0.277***	0.277***	0.252**	0.303***	0.273***
	(0.077)	(0.078)	(0.077)	(0.069)	(0.077)
Non-world religion	0.110*	0.109*	0.137**	0.151***	0.123**
	(0.044)	(0.044)	(0.043)	(0.039)	(0.044)
Age		0.659***	0.539***	0.100	0.488***
		(0.120)	(0.119)	(0.108)	(0.120)
Age squared		-0.757***	-0.357**	0.205+	-0.421**
		(0.128)	(0.128)	(0.116)	(0.130)
1 if female		0.066***	0.123***	0.111***	0.104***
		(0.008)	(0.008)	(0.007)	(0.008)
Subj. math skills			0.069***	0.068***	0.074***
			(0.002)	(0.001)	(0.002)
Income bracket			0.014***	0.007***	0.015***
			(0.001)	(0.001)	(0.001)
Education level			0.081***	0.030***	0.081***
			(0.007)	(0.007)	(0.008)
Constant	0.231***	0.082	-0.540***	-0.446***	-0.469***
	(0.045)	(0.051)	(0.052)	(0.047)	(0.053)
	Wald test of equality of coefficients				
Christianity vs. Islam	0.078***	0.078***	0.098***	0.107***	0.094***
	(0.022)	(0.022)	(0.022)	(0.020)	(0.022)
Christianity vs. Hinduism	0.046	0.048	0.055	0.055	0.049
	(0.043)	(0.043)	(0.042)	(0.038)	(0.043)
Christianity vs. Buddhism	0.057	0.058	0.054	0.022	0.060
	(0.040)	(0.040)	(0.040)	(0.036)	(0.040)
Christianity vs. Judaism	0.141+	0.144+	0.114	0.126+	0.148+
	(0.076)	(0.076)	(0.075)	(0.068)	(0.076)
Islam vs. Hinduism	0.032	0.030	0.043	0.052	0.045
	(0.041)	(0.041)	(0.041)	(0.037)	(0.041)
Islam vs. Buddhism	0.021	0.020	0.044	0.085*	0.034
	(0.043)	(0.043)	(0.042)	(0.038)	(0.043)
Islam vs. Judaism	0.063	0.066	0.016	0.018	0.054
	(0.075)	(0.076)	(0.075)	(0.068)	(0.076)
Hinduism vs. Buddhism	0.011	0.010	0.001	0.033	0.011

	(0.054)	(0.054)	(0.053)	(0.048)	(0.054)
Hinduism vs. Judaism	0.095	0.096	0.059	0.070	0.098
	(0.085)	(0.085)	(0.084)	(0.076)	(0.085)
Buddhism vs. Judaism	0.084	0.086	0.060	0.103	0.087
	(0.084)	(0.085)	(0.084)	(0.076)	(0.085)
Country FE	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.14	0.15	0.18	0.14	0.18
Observations	73895	73718	72888	72918	71955

Tab. S5. Differences in prosocial preferences across world religions. Main results, alternative specifications and alternative measures of the prosocial preference index.

Coefficients are based on OLS regressions. The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion. Column (1) shows estimates on an unconditional model (no controls except of country fixed effects). Column (2) show estimates of a model with exogenous individual controls (i.e., gender, age, age squared) and country fixed effects. Column (3) shows estimates of the main specification that includes the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. Column (4) shows estimates of the main specification with an alternative measure of the prosocial preference index including altruism and trust, and Column (5) shows estimates of the main specification with an alternative measure of the prosocial preference index including negative reciprocity, positive reciprocity, altruism and trust. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Negative reciprocity	(2) Positive reciprocity	(3) Altruism	(4) Trust	(5) Prosocial Index	(6) Prosocial Index I	(7) Prosocial Index II
Christianity	-0.091**	-0.063*	0.056+	0.079**	0.029	0.095**	0.018
	(0.030)	(0.026)	(0.029)	(0.023)	(0.035)	(0.032)	(0.033)
Islam	-0.082	-0.035	0.114*	0.158**	0.118	0.190**	0.105
	(0.056)	(0.051)	(0.053)	(0.050)	(0.071)	(0.057)	(0.066)
Hinduism	-0.136*	-0.057	0.031	0.152**	0.052	0.125**	0.039
	(0.056)	(0.044)	(0.044)	(0.052)	(0.054)	(0.044)	(0.052)
Buddhism	-0.046	-0.022	0.107*	-0.066	0.048	0.043	0.042
	(0.041)	(0.064)	(0.049)	(0.138)	(0.067)	(0.073)	(0.068)
Judaism	0.186**	-0.046	0.247***	0.146***	0.191**	0.274***	0.212***
	(0.060)	(0.049)	(0.045)	(0.040)	(0.058)	(0.049)	(0.061)
Non-world religion	-0.007	-0.049	0.100+	-0.003	0.032	0.067	0.020
	(0.058)	(0.066)	(0.051)	(0.086)	(0.061)	(0.072)	(0.063)
Age	-0.308	0.728***	-0.173	0.155	0.426*	-0.001	0.392*
	(0.204)	(0.188)	(0.143)	(0.163)	(0.170)	(0.173)	(0.170)
Age squared	-0.491*	-0.790***	0.127	0.128	-0.375*	0.171	-0.455*
	(0.209)	(0.203)	(0.150)	(0.173)	(0.177)	(0.181)	(0.176)
1 if female	-0.119***	0.061***	0.104***	0.055***	0.129***	0.113***	0.110***
	(0.013)	(0.013)	(0.014)	(0.016)	(0.017)	(0.017)	(0.017)
Subj. math skills	0.040***	0.032***	0.038***	0.059***	0.069***	0.068***	0.075***
	(0.005)	(0.003)	(0.003)	(0.002)	(0.004)	(0.003)	(0.004)
Income bracket	0.006**	0.012***	0.011***	-0.000	0.015***	0.007***	0.015***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Education level	-0.005	0.081***	0.090***	-0.031*	0.099***	0.044**	0.099***
	(0.009)	(0.013)	(0.012)	(0.013)	(0.015)	(0.014)	(0.015)
WP119 Religion Important	-0.068***	0.094***	0.175***	0.087***	0.212***	0.186***	0.197***
	(0.017)	(0.026)	(0.019)	(0.024)	(0.023)	(0.023)	(0.022)
Constant	0.455***	-0.301***	-0.522***	-0.231**	-0.628***	-0.531***	-0.550***
	(0.078)	(0.072)	(0.064)	(0.068)	(0.083)	(0.067)	(0.077)
Wald test of equality of coefficients							
Christianity vs. Islam	0.008	0.028	0.057	0.079+	0.088	0.094+	0.087
	(0.050)	(0.047)	(0.044)	(0.047)	(0.064)	(0.050)	(0.059)
Christianity vs. Hinduism	0.045	0.006	0.026	0.073	0.023	0.030	0.021
	(0.051)	(0.036)	(0.036)	(0.049)	(0.043)	(0.035)	(0.043)

Christianity vs. Buddhism	0.044	0.040	0.051	0.145	0.018	0.052	0.024
	(0.043)	(0.056)	(0.049)	(0.139)	(0.053)	(0.067)	(0.055)
Christianity vs. Judaism	0.277***	0.016	0.191***	0.067	0.162**	0.179***	0.194**
	(0.063)	(0.050)	(0.039)	(0.040)	(0.054)	(0.045)	(0.057)
Islam vs. Hinduism	0.053	0.022	0.083*	0.006	0.066*	0.064*	0.066*
	(0.045)	(0.027)	(0.039)	(0.043)	(0.031)	(0.026)	(0.031)
Islam vs. Buddhism	0.036	0.012	0.007	0.224	0.070	0.146*	0.063
	(0.048)	(0.061)	(0.053)	(0.143)	(0.058)	(0.070)	(0.057)
Islam vs. Judaism	0.269***	0.011	0.134**	0.012	0.073	0.085+	0.107+
	(0.060)	(0.045)	(0.041)	(0.037)	(0.054)	(0.046)	(0.058)
Hinduism vs. Buddhism	0.089+	0.034	0.076	0.218	0.005	0.082	0.003
	(0.045)	(0.047)	(0.062)	(0.159)	(0.041)	(0.068)	(0.043)
Hinduism vs. Judaism	0.322***	0.010	0.217***	0.006	0.139**	0.149**	0.173**
	(0.070)	(0.045)	(0.045)	(0.045)	(0.046)	(0.041)	(0.052)
Buddhism vs. Judaism	0.233**	0.024	0.140*	0.212	0.143*	0.231**	0.170*
	(0.066)	(0.069)	(0.053)	(0.146)	(0.064)	(0.078)	(0.070)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.11	0.13	0.13	0.10	0.17	0.13	0.16
Observations	56031	56963	56785	56230	56023	56047	55298

Tab. S6. Differences in prosocial preferences across world religions. Controlling for religiosity.

Coefficients are based on OLS regressions (for further notes see Tab. S5). Columns (1) to (7) show estimates of a model that accounts for religiosity by adding a binary control variable that takes the value of 0 if religion is not important in a respondent's daily life, and 1 if religion is important in daily life. Columns (1) to (4) show estimates for negative reciprocity (1), positive reciprocity (2), altruism (3) and trust (4). Column (5) to (7) show estimates for the prosocial preference index and alternative versions of the social preferences index (see Tab. S5). Specifications include the following additional control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Negative reciprocity	(2) Positive reciprocity	(3) Altruism	(4) Trust	(5) Prosocial Index	(6) Prosocial Index I	(7) Prosocial Index II
Christianity	-0.097***	0.004	0.133***	0.119***	0.139***	0.178***	0.127***
	(0.023)	(0.021)	(0.021)	(0.017)	(0.026)	(0.023)	(0.025)
Islam	-0.106*	0.031	0.207***	0.201***	0.238***	0.286***	0.221***
	(0.048)	(0.045)	(0.043)	(0.045)	(0.059)	(0.047)	(0.055)
Hinduism	-0.158**	0.028	0.141**	0.195**	0.194***	0.234***	0.176**
	(0.052)	(0.042)	(0.043)	(0.059)	(0.055)	(0.048)	(0.056)
Buddhism	-0.041	0.025	0.228***	0.047	0.194***	0.202***	0.188***
	(0.036)	(0.045)	(0.044)	(0.091)	(0.043)	(0.058)	(0.041)
Judaism	0.179*	0.007	0.291***	0.143***	0.253***	0.304***	0.274***
	(0.070)	(0.046)	(0.042)	(0.039)	(0.052)	(0.042)	(0.054)
Non-world religion	-0.039	0.018	0.158**	0.057	0.138*	0.152*	0.124*
	(0.052)	(0.058)	(0.048)	(0.070)	(0.057)	(0.060)	(0.059)
Age	-0.396+	0.783***	-0.210	0.283	0.496*	0.064	0.445*
	(0.204)	(0.173)	(0.151)	(0.202)	(0.193)	(0.213)	(0.188)
Age squared	-0.402+	-0.814***	0.271+	0.063	-0.329+	0.228	-0.393*
	(0.202)	(0.183)	(0.161)	(0.198)	(0.190)	(0.213)	(0.187)
1 if female	-0.126***	0.053***	0.104***	0.054**	0.123***	0.111***	0.103***
	(0.012)	(0.012)	(0.014)	(0.016)	(0.018)	(0.018)	(0.017)
Subj. math skills	0.039***	0.031***	0.036***	0.058***	0.068***	0.067***	0.073***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Income bracket	0.006**	0.013***	0.011***	-0.001	0.014***	0.007***	0.015***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Education level	0.003	0.076***	0.082***	-0.037**	0.087***	0.033*	0.088***
	(0.010)	(0.011)	(0.012)	(0.012)	(0.015)	(0.014)	(0.015)
Constant	0.426***	-0.281***	-0.424***	-0.198**	-0.537***	-0.439***	-0.467***
	(0.070)	(0.062)	(0.053)	(0.059)	(0.070)	(0.057)	(0.065)
			Wald test of equality of coefficients				
Christianity vs. Islam	0.008	0.027	0.074+	0.082+	0.098+	0.107*	0.094+
	(0.046)	(0.043)	(0.039)	(0.042)	(0.057)	(0.045)	(0.053)
Christianity vs. Hinduism	0.061	0.024	0.007	0.076	0.055	0.055	0.049
	(0.049)	(0.038)	(0.040)	(0.053)	(0.053)	(0.045)	(0.053)
Christianity vs. Buddhism	0.057	0.021	0.095*	0.071	0.055	0.023	0.061
	(0.041)	(0.044)	(0.045)	(0.097)	(0.041)	(0.060)	(0.038)

Christianity vs. Judaism	0.276***	0.003	0.158***	0.025	0.113*	0.125**	0.147**
	(0.072)	(0.045)	(0.041)	(0.037)	(0.051)	(0.041)	(0.051)
Islam vs. Hinduism	0.052	0.003	0.066*	0.006	0.043	0.052	0.045
	(0.040)	(0.034)	(0.032)	(0.043)	(0.042)	(0.034)	(0.043)
Islam vs. Buddhism	0.065	0.006	0.021	0.154	0.043	0.084	0.033
	(0.050)	(0.055)	(0.051)	(0.108)	(0.055)	(0.068)	(0.051)
Islam vs. Judaism	0.285***	0.024	0.084*	0.058	0.015	0.018	0.053
	(0.071)	(0.041)	(0.041)	(0.036)	(0.051)	(0.044)	(0.052)
Hinduism vs. Buddhism	0.117*	0.003	0.088	0.148	0.000	0.032	0.012
	(0.051)	(0.045)	(0.053)	(0.129)	(0.047)	(0.072)	(0.047)
Hinduism vs. Judaism	0.337***	0.021	0.150**	0.051	0.058	0.070	0.098
	(0.079)	(0.047)	(0.047)	(0.051)	(0.056)	(0.048)	(0.059)
Buddhism vs. Judaism	0.220**	0.018	0.063	0.096	0.058	0.102	0.086
	(0.076)	(0.057)	(0.053)	(0.106)	(0.053)	(0.069)	(0.054)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.11	0.13	0.14	0.10	0.17	0.13	0.17
Observations	68871	70038	69825	69116	68867	68897	67945

Tab. S7. Differences in prosocial preferences across world religions. Excluding countries from the sample.

Coefficients are based on OLS regressions (for further notes see Tab. S5). Columns (1) to (7) show estimates with a reduced sample that exclude the following Muslim countries: Saudi Arabia, Jordan, United Arab Emirates and Egypt (see Extended Methods and Data above). Columns (1) to (4) show estimates for negative reciprocity (1), positive reciprocity (2), altruism (3) and trust (4). Column (5) to (7) show estimates for the prosocial preference index and alternative versions of the social preferences index (see Tab. S5). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) 2PP	(2) 3PP	(3) NR w/o pun.
Christianity	-0.095***	-0.084***	-0.095***
	(0.023)	(0.024)	(0.021)
Islam	-0.100*	-0.117**	-0.090+
	(0.041)	(0.037)	(0.052)
Hinduism	-0.161**	-0.178***	-0.133*
	(0.048)	(0.045)	(0.052)
Buddhism	0.018	0.017	-0.061
	(0.046)	(0.059)	(0.043)
Judaism	0.080	0.231***	0.126+
	(0.056)	(0.048)	(0.074)
Non-world religion	-0.048	-0.046	-0.034
	(0.047)	(0.051)	(0.054)
Age	-0.190	-0.073	-0.505*
	(0.194)	(0.181)	(0.192)
Age squared	-0.539**	-0.587**	-0.270
	(0.187)	(0.178)	(0.192)
1 if female	-0.106***	-0.088***	-0.126***
	(0.012)	(0.010)	(0.013)
Subj. math skills	0.031***	0.032***	0.037***
	(0.003)	(0.004)	(0.004)
Income bracket	0.005**	0.006***	0.005**
	(0.002)	(0.002)	(0.002)
Education level	0.020+	0.041***	-0.018+
	(0.012)	(0.010)	(0.010)
Constant	0.416***	0.031	0.582***
	(0.061)	(0.055)	(0.070)
Wald test of equality of coefficients			
Christianity vs. Islam	0.005	0.033	0.004
	(0.036)	(0.034)	(0.050)
Christianity vs. Hinduism	0.066	0.094*	0.038
	(0.042)	(0.041)	(0.051)
Christianity vs. Buddhism	0.113*	0.101	0.033
	(0.052)	(0.061)	(0.051)
Christianity vs. Judaism	0.175**	0.315***	0.221**
	(0.057)	(0.050)	(0.076)
Islam vs. Hinduism	0.062+	0.061+	0.043
	(0.033)	(0.036)	(0.038)
Islam vs. Buddhism	0.118+	0.134*	0.029
	(0.061)	(0.062)	(0.063)
Islam vs. Judaism	0.180**	0.348***	0.216**
	(0.054)	(0.049)	(0.074)
Hinduism vs. Buddhism	0.179*	0.195**	0.072
	(0.074)	(0.067)	(0.063)
Hinduism vs. Judaism	0.241***	0.409***	0.259**
	(0.064)	(0.058)	(0.081)
Buddhism vs. Judaism	0.062	0.214**	0.187*
	(0.074)	(0.072)	(0.086)
Country FE	Yes	Yes	Yes
Pseudo-R2	0.09	0.10	0.12
Observations	72946	72946	72888

Tab. S8. Punishment patterns across world religions. Main results.

Coefficients are based on OLS regressions. Punishment patterns are obtained by decomposing the measure of negative reciprocity into its three components: second-party punishment, third-party punishment and negative reciprocity without punishment. Positive values indicate that members of world religions exhibited higher levels of the respective preference, negative values indicate that members of world religions exhibited lower levels of the respective preference. World religion is set of dummy variables indicating the world religion the respondent belongs to (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) with non-religious people as reference group. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion. Column (1) shows estimates for second-party punishment. Column (2) shows estimates for third-party punishment, Column (3) shows estimates for negative reciprocity without punishment. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) 2PP	(2) 2PP	(3) 3PP	(4) 3PP	(5) NR w/o pun.	(6) NR w/o pun.
Christianity	-0.165***	-0.100***	-0.147***	-0.087***	-0.167***	-0.097***
	(0.025)	(0.024)	(0.026)	(0.024)	(0.024)	(0.022)
Islam	-0.144**	-0.110**	-0.159***	-0.129**	-0.132*	-0.095+
	(0.043)	(0.041)	(0.039)	(0.038)	(0.054)	(0.051)
Hinduism	-0.205***	-0.161**	-0.211***	-0.170**	-0.177**	-0.130*
	(0.056)	(0.057)	(0.057)	(0.056)	(0.061)	(0.056)
Buddhism	-0.042	0.023	-0.038	0.024	-0.122**	-0.050
	(0.049)	(0.049)	(0.061)	(0.060)	(0.044)	(0.042)
Judaism	0.021	0.086	0.180***	0.240***	0.060	0.129+
	(0.051)	(0.057)	(0.043)	(0.048)	(0.070)	(0.077)
Non-world religion	-0.118*	-0.069	-0.111*	-0.067	-0.108+	-0.055
	(0.050)	(0.049)	(0.055)	(0.054)	(0.057)	(0.056)
Age		-0.155		-0.014		-0.527**
		(0.186)		(0.170)		(0.189)
Age squared		-0.680***		-0.777***		-0.326+
		(0.178)		(0.169)		(0.190)
1 if female		-0.131***		-0.115***		-0.152***
		(0.012)		(0.009)		(0.013)
Constant	0.515***	0.662***	0.203***	0.314***	0.571***	0.801***
	(0.043)	(0.057)	(0.039)	(0.053)	(0.054)	(0.062)
			Wald test of equality of coefficients			
Christianity vs. Islam	0.021	0.010	0.013	0.043	0.035	0.003
	(0.036)	(0.036)	(0.033)	(0.035)	(0.050)	(0.049)
Christianity vs. Hinduism	0.040	0.061	0.064	0.083	0.010	0.033
s	(0.050)	(0.051)	(0.053)	(0.053)	(0.058)	(0.055)
Christianity vs. Buddhism	0.123*	0.123*	0.108+	0.111+	0.045	0.047
	(0.053)	(0.054)	(0.062)	(0.061)	(0.051)	(0.050)
Christianity vs. Judaism	0.186***	0.186**	0.326***	0.326***	0.227**	0.226**
	(0.050)	(0.058)	(0.044)	(0.050)	(0.070)	(0.079)
Islam vs. Hinduism	0.061	0.051	0.051	0.041	0.045	0.036
	(0.042)	(0.042)	(0.048)	(0.047)	(0.048)	(0.045)
Islam vs. Buddhism	0.102	0.133*	0.121+	0.154*	0.010	0.045
	(0.063)	(0.064)	(0.063)	(0.063)	(0.063)	(0.060)
Islam vs. Judaism	0.165**	0.196**	0.339***	0.369***	0.192**	0.223**
	(0.048)	(0.055)	(0.042)	(0.049)	(0.069)	(0.078)
Hinduism vs. Buddhism	0.163+	0.184*	0.172*	0.194*	0.055	0.080
	(0.082)	(0.087)	(0.077)	(0.078)	(0.066)	(0.060)
Hinduism vs. Judaism	0.225**	0.247**	0.390***	0.410***	0.237**	0.259**
	(0.063)	(0.070)	(0.061)	(0.066)	(0.082)	(0.087)
Buddhism vs. Judaism	0.063	0.063	0.218**	0.215**	0.181*	0.179*
	(0.070)	(0.076)	(0.069)	(0.073)	(0.081)	(0.087)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.06	0.08	0.07	0.09	0.08	0.11

Observations	74062	73878	74057	73873	73985	73802

Tab. S9. Punishment patterns across world religions. Alternative specifications.

Coefficients are based on OLS regressions (for further notes see Tab. S8). Unconditional models were calculated without controls except of country fixed effects. Models with exogenous individual controls include gender, age, age squared and country fixed effects. Columns (1) and (2) show estimates of second party punishment. Columns (3) and (4) show estimates of third-party punishment, Columns (5) and (6) show estimates of negative reciprocity without punishment. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) 2PP	(2) 2PP	(3) 3PP	(4) 3PP	(5) NR w/o pun.	(6) NR w/o pun.
Christianity	-0.094***	-0.084*	-0.083***	-0.104***	-0.094***	-0.074*
	(0.023)	(0.033)	(0.024)	(0.029)	(0.021)	(0.029)
Islam	-0.099*	-0.076	-0.115**	-0.124**	-0.089+	-0.053
	(0.041)	(0.050)	(0.037)	(0.043)	(0.052)	(0.060)
Hinduism	-0.161**	-0.145**	-0.177***	-0.176***	-0.133*	-0.103+
	(0.048)	(0.048)	(0.045)	(0.044)	(0.053)	(0.057)
Buddhism	0.019	0.064	0.018	0.061	-0.061	-0.082
	(0.046)	(0.079)	(0.058)	(0.051)	(0.043)	(0.050)
Judaism	0.079	0.088	0.231***	0.212***	0.126+	0.146*
	(0.056)	(0.054)	(0.048)	(0.045)	(0.074)	(0.063)
Non-world religion	-0.047	-0.025	-0.045	-0.051	-0.034	0.012
	(0.047)	(0.057)	(0.051)	(0.061)	(0.054)	(0.058)
Age	-0.145	-0.039	-0.106	0.035	-0.469*	-0.414*
	(0.202)	(0.182)	(0.187)	(0.194)	(0.197)	(0.193)
Age squared	-0.578**	-0.684***	-0.558**	-0.698***	-0.302	-0.360+
	(0.194)	(0.183)	(0.183)	(0.194)	(0.197)	(0.200)
1 if female	-0.108***	-0.108***	-0.086***	-0.079***	-0.131***	-0.125***
	(0.012)	(0.013)	(0.010)	(0.012)	(0.013)	(0.014)
Subj. math skills	0.031***	0.033***	0.032***	0.033***	0.037***	0.039***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Income bracket	0.006***	0.006**	0.006***	0.005**	0.005**	0.005*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Education level	0.023+	0.010	0.046***	0.038**	-0.015	-0.024*
	(0.012)	(0.010)	(0.011)	(0.011)	(0.010)	(0.009)
WP119 Religion Important		-0.056**		-0.036+		-0.075***
		(0.019)		(0.020)		(0.018)
Constant	0.398***	0.419***	0.026	0.054	0.568***	0.594***
	(0.062)	(0.068)	(0.056)	(0.061)	(0.072)	(0.081)
			Wald test of equality of coefficients			
Christianity vs. Islam	0.004	0.008	0.032	0.020	0.005	0.021
	(0.036)	(0.039)	(0.034)	(0.037)	(0.050)	(0.054)
Christianity vs. Hinduism	0.067	0.061	0.094*	0.072+	0.039	0.029
	(0.042)	(0.038)	(0.041)	(0.040)	(0.051)	(0.051)
Christianity vs. Buddhism	0.113*	0.148+	0.101+	0.165**	0.033	0.008
	(0.052)	(0.077)	(0.061)	(0.046)	(0.051)	(0.054)
Christianity vs. Judaism	0.174**	0.172**	0.314***	0.316***	0.220**	0.220**
	(0.057)	(0.054)	(0.051)	(0.048)	(0.076)	(0.066)
Islam vs. Hinduism	0.062+	0.068*	0.062+	0.052	0.043	0.050
	(0.033)	(0.031)	(0.036)	(0.039)	(0.038)	(0.041)
Islam vs. Buddhism	0.118+	0.140+	0.134*	0.185***	0.029	0.029
	(0.060)	(0.081)	(0.062)	(0.049)	(0.063)	(0.059)
Islam vs. Judaism	0.178**	0.165**	0.347***	0.336***	0.216**	0.199**
	(0.055)	(0.051)	(0.049)	(0.046)	(0.074)	(0.063)
Hinduism vs. Buddhism	0.180*	0.208*	0.195**	0.237***	0.072	0.021
	(0.074)	(0.092)	(0.067)	(0.054)	(0.063)	(0.054)

Hinduism vs. Judaism	0.240***	0.233***	0.408***	0.388***	0.259**	0.249**
	(0.064)	(0.057)	(0.058)	(0.052)	(0.081)	(0.071)
Buddhism vs. Judaism	0.061	0.025	0.213**	0.151*	0.187*	0.228**
	(0.074)	(0.090)	(0.072)	(0.058)	(0.086)	(0.075)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.09	0.09	0.10	0.09	0.11	0.11
Observations	68928	56067	68928	56069	68871	56031

Tab. S10. Punishment patterns across world religions. Excluding countries from the sample and controlling for religiosity.

Coefficients are based on OLS regressions (for further notes see Tab. S8). The reduced sample excludes the following Muslim countries: Saudi Arabia, Jordan, United Arab Emirates and Egypt (see Extended Materials and Methods above). The second model accounts for religiosity by adding a binary control variable that takes the value of 0 if religion is not important in a respondent's daily life, and 1 if religion is important in daily life. Columns (1) and (2) show estimates of second party punishment. Columns (3) and (4) show estimates of third-party punishment, Columns (5) and (6) show estimates of negative reciprocity without punishment. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index	(2) Prosocial Index	(3) Prosocial Index	(4) Prosocial Index	(5) Prosocial Index	(6) Prosocial Index
World religion (Big 5)	0.089*	0.201***	0.088*	0.194***	0.094*	0.197***
	(0.039)	(0.028)	(0.040)	(0.026)	(0.039)	(0.026)
Non-world religion	-0.007	0.193*	-0.004	0.189*	0.025	0.213**
	(0.080)	(0.077)	(0.079)	(0.076)	(0.079)	(0.072)
Age			0.782**	0.496	0.580*	0.435
			(0.258)	(0.339)	(0.218)	(0.306)
Age squared			-0.992***	-0.473	-0.476*	-0.172
			(0.236)	(0.318)	(0.214)	(0.303)
1 if female			0.086***	0.044+	0.145***	0.099***
			(0.023)	(0.022)	(0.023)	(0.025)
Subj. math skills					0.070***	0.069***
					(0.005)	(0.006)
Income bracket					0.014***	0.014***
					(0.003)	(0.002)
Education level					0.107***	0.052*
					(0.018)	(0.023)
Constant	0.356***	-0.600***	0.182*	-0.722***	-0.446***	-1.390***
	(0.039)	(0.028)	(0.068)	(0.081)	(0.066)	(0.075)
Wald test of equality of coefficients						
World religion (Big 5)	0.112*		0.106*		0.103*	
	(0.048)		(0.047)		(0.046)	
Population size	Small	Large	Small	Large	Small	Large
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.092	0.193	0.095	0.193	0.132	0.223
Observations	37990	35905	37895	35823	37468	35420

Tab. S11. Religion and population size. Main results and alternative specifications.

Coefficients are based on OLS regressions. The sample was split into respondents living in countries with small population size (below median) and respondents living in countries with large population size (above median). The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. World religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a world religion. Non-world religion is a dummy variable that takes on the value 0 if the respondent is non-religious (reference group), and 1 if the respondent is part of a non-world religion. Columns (1) and (2) show estimates on an unconditional model (no controls except of country fixed effects). Columns (3) and (4) show estimates of a model with exogenous individual controls (i.e., gender, age, age squared) and country fixed effects. Columns (5) and (6) show estimates of the main specification that includes the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients identifying a world religion are equal to each other across the two population size samples (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index I	(2) Prosocial Index I	(3) Prosocial Index II	(4) Prosocial Index II	(5) Prosocial Index	(6) Prosocial Index	(7) Prosocial Index	(8) Prosocial Index
World religion (Big 5)	0.142***	0.224***	0.079*	0.188***	0.097*	0.197***	0.094*	0.197***
	(0.035)	(0.020)	(0.037)	(0.024)	(0.039)	(0.026)	(0.039)	(0.026)
Non-world religion	0.166+	0.136*	0.004	0.205*	0.027	0.213**	0.025	0.213**
	(0.098)	(0.064)	(0.081)	(0.076)	(0.079)	(0.072)	(0.079)	(0.072)
Age	-0.002	0.138	0.529*	0.383	0.477*	0.445	0.580*	0.435
	(0.221)	(0.325)	(0.218)	(0.292)	(0.211)	(0.314)	(0.218)	(0.306)
Age squared	0.214	0.266	-0.554*	-0.220	-0.418+	-0.166	-0.476*	-0.172
	(0.232)	(0.319)	(0.213)	(0.295)	(0.214)	(0.310)	(0.214)	(0.303)
1 if female	0.121***	0.099***	0.125***	0.081**	0.146***	0.100***	0.145***	0.099***
	(0.022)	(0.026)	(0.023)	(0.023)	(0.024)	(0.025)	(0.023)	(0.025)
Subj. math skills	0.067***	0.069***	0.073***	0.076***	0.066***	0.069***	0.070***	0.069***
	(0.004)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
Income bracket	0.008**	0.005**	0.014***	0.015***	0.015***	0.014***	0.014***	0.014***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Education level	0.059***	-0.002	0.107***	0.052*	0.111***	0.062**	0.107***	0.052*
	(0.015)	(0.020)	(0.018)	(0.022)	(0.019)	(0.022)	(0.018)	(0.023)
Constant	-0.325***	-0.511***	-0.366***	-0.813***	-0.426***	-0.837***	-0.446***	-0.810***
	(0.058)	(0.062)	(0.063)	(0.094)	(0.066)	(0.093)	(0.066)	(0.094)
Wald test of equality of coefficients								
World religion (Big 5)	0.082*		0.108*		0.100*		0.103*	
	(0.040)		(0.044)		(0.046)		(0.046)	
Population size	Small	Large	Small	Large	Small	Large	Small	Large
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.117	0.169	0.133	0.222	0.128	0.212	0.132	0.223
Observations	37486	35432	36911	35044	34460	34407	37468	35420

Tab. S12. Religion and population size. Alternative measures of the prosocial preference index, excluding countries from the sample and alternative measures of population size.

Coefficients are based on OLS regressions. The sample was split into respondents living in countries with small population size (below median) and respondents living in countries with large population size (above median) (for further notes see Tab. S11). Columns (1) and (2) show estimates with an alternative measure of the social preference index including altruism and trust. Columns (3) and (4) show estimates with an alternative measure of

the social preference index including negative reciprocity, positive reciprocity, altruism and trust. Columns (5) and (6) show estimates with a reduced sample that exclude the following Muslim countries: Saudi Arabia, Jordan, United Arab Emirates and Egypt (see Extended Methods and Data above). Columns (7) and (8) show estimates where the sample was split by the median of population size in the year of 2012. Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients identifying a world religion are equal to each other across the two population size samples (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index	(2) Prosocial Index	(3) Prosocial Index	(4) Prosocial Index	(5) Prosocial Index	(6) Prosocial Index
World religion (Big 5)	0.231***	0.134***	0.228***	0.127***	0.252***	0.132***
	(0.044)	(0.030)	(0.043)	(0.029)	(0.046)	(0.028)
Non-world religion	0.155	0.108	0.154	0.102	0.228*	0.113+
	(0.111)	(0.066)	(0.111)	(0.065)	(0.104)	(0.063)
Age			0.584*	0.743*	0.569*	0.498+
			(0.283)	(0.330)	(0.270)	(0.274)
Age squared			-0.707*	-0.830**	-0.430	-0.300
			(0.310)	(0.298)	(0.315)	(0.257)
1 if female			0.013	0.111***	0.061*	0.176***
			(0.022)	(0.021)	(0.024)	(0.020)
Subj. math skills					0.068***	0.071***
					(0.006)	(0.005)
Income bracket					0.014***	0.015***
					(0.003)	(0.002)
Education level					0.053*	0.100***
					(0.026)	(0.017)
Constant	0.213***	0.340***	0.108	0.158+	-0.478***	-0.932***
	(0.044)	(0.025)	(0.071)	(0.090)	(0.081)	(0.082)
Wald test of equality of coefficients						
World religion (Big 5)	0.097+		0.101*		0.120*	
	(0.053)		(0.051)		(0.053)	
Institutional quality	Low	High	Low	High	Low	High
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.153	0.129	0.153	0.132	0.183	0.170
Observations	34529	39366	34471	39247	34049	38839

Tab. S13. Religion and institutional quality. Main results and alternative specifications.

Coefficients are based on OLS regressions. The sample was split into respondents living in countries with low institutional quality (below median) and respondents living in countries with high institutional quality (above median). The summary index of prosocial preferences is based on a principal component analysis of positive reciprocity, altruism and trust. Positive values indicate that members of world religions exhibited higher levels of prosocial preferences, negative values indicate that members of world religions exhibited lower levels of prosocial preferences. The difference between members of world religions and non-religious people was calculated as the coefficient on a categorical variable that takes on the value 0 if respondent is non-religious (reference group), 1 if respondent is part of a world religion (i.e., Christianity, Muslim, Hinduism, Buddhism and Judaism) and 2 if respondent belongs to a non-world religion (other religion). Columns (1) and (2) show estimates on an unconditional model (no controls except of country fixed effects). Columns (3) and (4) show estimates of a model with exogenous individual controls (i.e., gender, age, age squared) and country fixed effects. Columns (5) and (6) show estimates of the main specification that includes the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients identifying a world religion are equal to each other across the two institutional quality samples (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index I	(2) Prosocial Index I	(3) Prosocial Index II	(4) Prosocial Index II	(5) Prosocial Index	(6) Prosocial Index	(7) Prosocial Index	(8) Prosocial Index	(9) Prosocial Index	(10) Prosocial Index
World religion (Big 5)	0.247***	0.173***	0.221***	0.122***	0.257***	0.132***	0.255***	0.132***	0.254***	0.132***
	(0.042)	(0.024)	(0.040)	(0.027)	(0.046)	(0.028)	(0.048)	(0.028)	(0.045)	(0.028)
Non-world religion	0.303*	0.085	0.223*	0.091	0.232*	0.113+	0.204+	0.123+	0.230*	0.113+
	(0.122)	(0.057)	(0.101)	(0.067)	(0.105)	(0.063)	(0.110)	(0.062)	(0.105)	(0.063)
Age	0.356	-0.084	0.495+	0.463	0.512+	0.498+	0.624*	0.476+	0.634*	0.498+
	(0.304)	(0.248)	(0.259)	(0.277)	(0.290)	(0.274)	(0.269)	(0.267)	(0.275)	(0.274)
Age squared	-0.150	0.426+	-0.468	-0.380	-0.422	-0.300	-0.500	-0.273	-0.466	-0.300
	(0.312)	(0.248)	(0.308)	(0.259)	(0.333)	(0.257)	(0.313)	(0.251)	(0.323)	(0.257)
1 if female	0.042+	0.168***	0.045+	0.154***	0.053*	0.176***	0.063*	0.169***	0.060*	0.176***
	(0.021)	(0.020)	(0.023)	(0.019)	(0.026)	(0.020)	(0.025)	(0.020)	(0.025)	(0.020)
Subj. math skills	0.069***	0.067***	0.074***	0.075***	0.065***	0.071***	0.067***	0.071***	0.068***	0.071***
	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)
Income bracket	0.006*	0.007***	0.014***	0.015***	0.014***	0.015***	0.013***	0.015***	0.014***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Education level	-0.011	0.059**	0.052*	0.101***	0.064*	0.100***	0.057*	0.096***	0.053+	0.100***
	(0.020)	(0.017)	(0.025)	(0.017)	(0.026)	(0.017)	(0.027)	(0.017)	(0.027)	(0.017)
Constant	-0.356***	-0.618***	-0.391***	-0.915***	-0.469***	-0.932***	-0.485***	-0.927***	-0.992***	-0.932***
	(0.068)	(0.063)	(0.076)	(0.081)	(0.084)	(0.082)	(0.083)	(0.082)	(0.095)	(0.082)
					Wald test of equality of coefficients					
World religion (Big 5)	0.074		0.099+		0.126*		0.123*		0.123*	
	(0.048)		(0.048)		(0.053)		(0.055)		(0.053)	
Institutional Quality	Low	High	Low	High	Low	High	Low	High	Low	High
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.145	0.141	0.183	0.171	0.171	0.170	0.179	0.169	0.190	0.170
Observations	34054	38864	33725	38230	30028	38839	32114	40774	32106	38839

Tab. S14. Religion and institutional quality. Alternative measures of the prosocial preference index, excluding countries from the sample and alternative measures of institutional quality.

Coefficients are based on OLS regressions. The sample was split into respondents in countries with low institutional quality (below median) and respondents living in countries with high institutional quality (above median) (for further notes see Tab. S13). Columns (1) and (2) show estimates with an alternative measure of the social preference index including altruism and trust. Columns (3) and (4) show estimates with an alternative measure of the social preference

index including negative reciprocity, positive reciprocity, altruism and trust. Columns (5) and (6) show estimates with a reduced sample that exclude the following Muslim countries: Saudi Arabia, Jordan, United Arab Emirates and Egypt (see Extended Methods and Data above). Columns (7) and (8) show estimates where the sample was split by the median of institutional quality in the year of 2012. Columns (9) and (10) show estimates with a sample that excludes Afghanistan and Bosnia Herzegovina (due to missing values for institutional quality). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients identifying a world religion are equal to each other across the two institutional quality samples (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index	(2) Prosocial Index	(3) Prosocial Index	(4) Prosocial Index	(5) Prosocial Index	(6) Prosocial Index	(7) Prosocial Index	(8) Prosocial Index	(9) Prosocial Index	(10) Prosocial Index	(11) Prosocial Index	(12) Prosocial Index
World religion	0.125	0.086	0.277***	0.187***	0.126	0.080	0.273***	0.177***	0.142	0.086*	0.302***	0.178***
(Big 5)	(0.094)	(0.042)	(0.037)	(0.031)	(0.092)	(0.042)	(0.035)	(0.028)	(0.096)	(0.041)	(0.035)	(0.026)
Non-world	0.035	-0.014	0.221	0.190	0.039	-0.024	0.216	0.184	0.107	-0.033	0.287	0.199*
religion	(0.159)	(0.071)	(0.154)	(0.091)	(0.159)	(0.068)	(0.156)	(0.088)	(0.146)	(0.079)	(0.154)	(0.081)
1 if female					0.025	0.133***	0.002	0.085**	0.071*	0.202***	0.053	0.144***
					(0.030)	(0.030)	(0.032)	(0.028)	(0.032)	(0.027)	(0.035)	(0.029)
Age					0.565	0.956*	0.588	0.467	0.583	0.590	0.509	0.343
					(0.358)	(0.398)	(0.439)	(0.546)	(0.313)	(0.329)	(0.428)	(0.459)
Age squared					-0.774	-1.159**	-0.623	-0.414	-0.560	-0.437	-0.246	-0.086
					(0.416)	(0.357)	(0.452)	(0.488)	(0.380)	(0.319)	(0.478)	(0.423)
Subj. math									0.068***	0.071***	0.068***	0.070***
skills									(0.009)	(0.005)	(0.008)	(0.009)
Income bracket									0.010*	0.017***	0.016***	0.012**
									(0.004)	(0.003)	(0.004)	(0.003)
Education level									0.068	0.128***	0.042	0.062*
									(0.035)	(0.017)	(0.036)	(0.028)
Constant	0.319**	0.126**	-1.104***	0.293***	0.217*	-0.098	-1.218***	0.143	-0.352**	-1.204***	-1.768***	-0.791***
	(0.094)	(0.035)	(0.036)	(0.027)	(0.102)	(0.112)	(0.106)	(0.147)	(0.108)	(0.099)	(0.116)	(0.114)
Sample split	LIQ-SP	HIQ-SP	LIQ-LP	HIQ-LP	LIQ-SP	HIQ-SP	LIQ-LP	HIQ-LP	LIQ-SP	HIQ-SP	LIQ-LP	HIQ-LP
Institutional quality	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Population size	Small	Small	Large	Large	Small	Small	Large	Large	Small	Small	Large	Large
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.096	0.082	0.198	0.181	0.097	0.087	0.198	0.183	0.129	0.131	0.228	0.215
Observations	16525	21465	18004	17901	16483	21412	17988	17835	16325	21143	17724	17696

Tab. S15. The impact of the interactive effect of institutional quality and population size on religion. Main results and alternative specifications.

Coefficients are based on OLS regressions. The sample was split into four categories (median split of population size and institutional quality): i) LIQ-SP = Low institutional quality and small population size, ii) HIQ-SP = High institutional quality and small population size, iii) LIQ-LP = Low institutional quality and large population size, and iv) HIQ-LP = High institutional quality and large population size (for further notes see Tab. S11 and S13). Columns (1) to (4) show estimates on an unconditional model (no controls except of country fixed effects). Columns (5) to (8) show estimates of a model with exogenous

individual controls (i.e., gender, age, age squared) and country fixed effects. Columns (9) and (12) show estimates of the main specification that includes the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and country fixed effects. The corresponding Wald tests are reported in Tab. S17. Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) Prosocial Index	(2) Prosocial Index	(3) Prosocial Index
LIQ_SP vs. LIQ_LP	0.152	0.148	0.160
	(0.098)	(0.097)	(0.100)
LIQ_SP vs. HIQ_SP	0.039	0.045	0.055
	(0.100)	(0.099)	(0.102)
LIQ_SP vs. HIQ_LP	0.062	0.051	0.037
	(0.097)	(0.094)	(0.097)
LIQ_LP vs. HIQ_SP	0.190***	0.193***	0.215***
	(0.055)	(0.054)	(0.053)
LIQ_LP vs. HIQ_LP	0.089+	0.096**	0.123**
	(0.047)	(0.044)	(0.043)
HIQ_SP vs. HIQ_LP	0.101*	0.097+	0.092+
	(0.051)	(0.050)	(0.048)
Model	Unconditional model (Columns 1 to 4 in Tab. S15)	Model with exogenous individual controls (Columns 5 to 8 in Tab. S15)	Main specification (Columns 9 to 10 in Tab. S15)

Tab. S16. Wald tests of equality of coefficients corresponding to Tab. S15.

The Wald tests reported in this table are based on the regression analysis of Tab. S15. Wald tests are run on the null hypothesis that coefficients identifying a world religion are equal to each other across combinations of the four samples (LIQ-SP, HIQ-SP, LIQ-LP and HIQ-LP). Differences between coefficients are reported as absolute differences. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = statistical significance at the 1% level *** = statistical significance at the 0.1% level.

	(1) Negative reciprocity	(2) Positive reciprocity	(3) Altruism	(4) Trust
World religion (Big 5)	-0.074***	0.001	0.152***	0.121***
	(0.018)	(0.021)	(0.020)	(0.014)
Other religion	-0.024	-0.045	0.141**	0.095*
	(0.056)	(0.038)	(0.045)	(0.046)
Age	-0.416*	0.886***	-0.162	0.225
	(0.193)	(0.155)	(0.155)	(0.195)
Age squared	-0.380+	-0.927***	0.219	0.126
	(0.194)	(0.163)	(0.165)	(0.188)
1 if female	-0.129***	0.060***	0.093***	0.050**
	(0.011)	(0.011)	(0.013)	(0.016)
Subj. math skills	0.034***	0.032***	0.034***	0.055***
	(0.003)	(0.002)	(0.003)	(0.003)
Income bracket	0.005**	0.012***	0.009***	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)
Education level	-0.003	0.082***	0.086***	-0.030**
	(0.010)	(0.009)	(0.011)	(0.011)
Constant	0.162***	-0.187***	-0.053	-0.378***
	(0.040)	(0.041)	(0.035)	(0.036)
Region FE	Yes	Yes	Yes	Yes
Pseudo-R2	0.19	0.22	0.20	0.17
Observations	72129	73203	72997	72296

Tab. S17. Differences in social preferences between religious and non-religious people. Controlling for subnational region fixed effects.

Coefficients are based on OLS regressions. Positive values indicate that religious people exhibited higher levels of the respective preference, negative values indicate that religious people exhibited lower levels of the respective preference. The difference between members of world religions and non-religious people was calculated as the coefficient on a categorical variable that takes on the value 0 if respondent is non-religious (reference group), 1 if respondent is Christian, 2 if respondent is Muslim, 3 if respondent is Hindu, 4 if respondent is Buddhist, 5 if respondent is Jewish and 6 if respondent belongs to a non-world religion (other religion). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and subnational region fixed effects. Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.

	(1) SP index	(2) 2PP	(3) 3PP	(4) NR w/o pun.
Christianity	0.146***	-0.071***	-0.052*	-0.081***
	(0.024)	(0.020)	(0.020)	(0.019)
Islam	0.196***	-0.098**	-0.100**	-0.111**
	(0.040)	(0.031)	(0.033)	(0.035)
Hinduism	0.139**	-0.076*	-0.111+	-0.082+
	(0.043)	(0.038)	(0.057)	(0.041)
Buddhism	0.170**	-0.026	-0.023	-0.047
	(0.053)	(0.028)	(0.064)	(0.040)
Judaism	0.198***	0.028	0.243***	0.046
	(0.058)	(0.051)	(0.052)	(0.068)
Other religion	0.103+	-0.035	-0.006	-0.035
	(0.052)	(0.050)	(0.046)	(0.057)
Age	0.565**	-0.192	-0.092	-0.506**
	(0.191)	(0.195)	(0.172)	(0.190)
Age squared	-0.403*	-0.546**	-0.583**	-0.263
	(0.186)	(0.192)	(0.174)	(0.191)
1 if female	0.119***	-0.111***	-0.097***	-0.130***
	(0.017)	(0.012)	(0.009)	(0.013)
Subj. math skills	0.066***	0.027***	0.027***	0.033***
	(0.003)	(0.003)	(0.003)	(0.003)
Income bracket	0.014***	0.004**	0.005**	0.004*
	(0.002)	(0.001)	(0.002)	(0.001)
Education level	0.096***	0.017	0.038***	-0.021*
	(0.014)	(0.012)	(0.011)	(0.010)
Constant	-0.361***	0.360***	-0.258***	0.420***
	(0.055)	(0.049)	(0.044)	(0.053)
Wald test of equality of coefficients				
Christianity vs. Islam	0.051	0.027	0.047	0.030
	(0.035)	(0.026)	(0.029)	(0.031)
Christianity vs. Hinduism	0.007	0.005	0.059	0.001
	(0.039)	(0.034)	(0.054)	(0.039)
Christianity vs. Buddhism	0.024	0.045	0.029	0.033
	(0.048)	(0.031)	(0.062)	(0.046)
Christianity vs. Judaism	0.052	0.099+	0.296***	0.126+
	(0.058)	(0.051)	(0.055)	(0.070)
Islam vs. Hinduism	0.057	0.022	0.012	0.029
	(0.035)	(0.030)	(0.057)	(0.035)
Islam vs. Buddhism	0.027	0.072+	0.076	0.064
	(0.052)	(0.036)	(0.062)	(0.051)
Islam vs. Judaism	0.001	0.126*	0.343***	0.156*
	(0.057)	(0.052)	(0.057)	(0.072)
Hinduism vs. Buddhism	0.030	0.050	0.088	0.035
	(0.051)	(0.038)	(0.076)	(0.050)
Hinduism vs. Judaism	0.058	0.104+	0.355***	0.128
	(0.061)	(0.060)	(0.077)	(0.079)

Buddhism vs. Judaism	0.028	0.055	0.266**	0.093
	(0.069)	(0.057)	(0.078)	(0.080)
Region FE	Yes	Yes	Yes	Yes
Pseudo-R2	0.26	0.14	0.16	0.18
Observations	72061	72182	72184	72129

Tab. S18. Differences in prosocial preferences and punishment across world religions. Controlling for subnational region fixed effects.

Coefficients are based on OLS regressions (for further notes see Tab. S5 and S8). Specifications include the following control variables: gender, age, age squared, subjective math skills, education level, household income brackets, and subnational region fixed effects. The Wald tests reported at the middle of the table are run on the null hypothesis that coefficients of the categorical variable identifying a religion are equal to each other (differences between coefficients are reported as absolute differences). Standard errors clustered at the country level. + = Statistical significance at the 10 % level; * = Statistical significance at the 5% level; ** = Statistical significance at the 1% level; *** = Statistical significance at the 0.1% level.